*Fourteenth Year of Publication*

# Industrial FINISHING

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## Contents of this Issue

Letters from Readers of Industrial Finishing ..... 5
Painting Railway Cars; Finishing Aluminum and Its Alloys ..... 10
The Preparation for and Application of Durable and Decorative Coatings on Masonite Presdwood ..... 14
Control—The Basis of Uniformity ..... 22
How to Finish Furniture Made of Pecan Wood ..... 26
Lacquer Dipping Small Wood Parts ..... 32
Questions; Answers ..... 44
New Materials, Supplies, Equipment ..... 50
Editorial ..... 62

Recent Changes in Furniture Finishing ..... 13
Metal Finishing Equipment Co. Announces Calif. Distributor ..... 13
J. F. Nonamaker Dies ..... 13
Comments on Bake Finish Article ..... 21
Oven Expert Joins Sales Staff ..... 21
Changes in McAleer Mfg. Co. ..... 24
Lando Finishes, Inc., Successor to Thos. E. O'Connor Co. ..... 31
Spray Operation Instructions ..... 31
Torture Test for Finishes ..... 42
Wrinkle Finish Patents ..... 42
Wire and Rod Booklet ..... 57
R. H. Clinton, President of The Clinton Co., Dies ..... 57
Lawrence-McFadden Moves ..... 58
Japanning—Enameling Ovens ..... 61
Industrial Safety Catalog ..... 65
Oven-Baked Finishes ..... 66
Chemical Research Booklet, Free ..... 67

"Classified Advertising" Section ..... 67
Advertisers' Index ..... 68

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# *Letters from Readers*

## OF INDUSTRIAL FINISHING

**These letters (and many others) were answered recently by the editorial department, but are published here to reveal certain interesting trends of desire and activity in the industry, and to encourage additional inquiries, comments and suggestions. Further information about any of them can be obtained by writing this office.—Editor.**

### Rustproofing Material

In July issue, we notice an article by Mr. W. R. Allen, beginning on page 28, regarding rustproofing the insides of tubular framework for airplanes . . . . stating that he was willing to give the names of the materials and makers, upon request. Please have Mr. Allen give us this information.—O. & O. Co. (Sporting Goods Division).

---

We would appreciate your giving us the address of the aircraft company or the individual that can tell us the details of how they rustproof the inside of tubular frames, as published in July issue, pages 28-31, under the title "Finishing New Aircraft."—V. C. Co. (Burial Vaults).

---

### Grain Reproduction in Tile Board Finishing

We are contemplating production of a line of tile board and panel board, and possibly a line of imitation woods and marbles to be applied to masonite panels. It will be much appreciated if you could refer us to individuals or companies who could give us information about surfacing and painting masonite panels; also information about equipment and machines suitable for grooving tile lines.

We are also eager to get information regarding the processes of imitating wood and marble on these panels. If possible, we would like to be put in touch with individuals who have had actual experience with operations of this kind, in the plants of companies producing this type of material. We shall not only be in the market for suitable equipment, but shall possibly need the services of an engineer, superintendent, or foreman provided he is thoroughly conversant with products of this type.—A. C. Inc. (Custom Building).

---

### Reproducing Wood Grain

We note in August issue, page 57, a reference from one of your readers, O. W. Corp., for information in regard to the Etched Copper-Plate Method of Reproducing Wood Grain, which you mention was referred to in INDUSTRIAL FINISHING of May 1938, pages 22 to 25. We are interested in this method. Will you kindly tell us where we might secure further information on this subject?—L. Furn. Co.

---

We note in August issue, page 54, an article by Mr. Art C. Heberer referring to methods of simulating various wood grains such as walnut, mahogany, satin wood, etc., on gum, tupelo, magnolia and other hardwoods. We would like to get further information on this subject.—M. L. Co. (Furniture).

---

### Color Matching Equipment

We have read with interest page 22 of the April 1938 edition of INDUSTRIAL FINISHING, in connection with the article about "Aircraft

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5208 Harvard Avenue Cleveland, Ohio

Finishing." We are interested in receiving particulars of the Paint Production Laboratory Mixing Equipment as mentioned, and would be glad if you would send our name to the manufacturer of such equipment with a request for full information and a quotation.

Perhaps this manufacturer may have an agent here in Australia with whom we could communicate. Advice under this heading would also be appreciated. — B. M. Ltd., Sydney, N. S. W., Australia.

## Waterproofing Basement

We have two concrete basements which we wish to make waterproof. Could you give us some information as to how we could do this? As these are under a building in the ground, it would only be convenient to work on the inside walls.

The two basements are located on a hill and the trouble is that they stay damp. We want to use one for the storage of water; the other will be used as a workroom. If you can give us any help, please name the materials and tell us where we can get them.—L. & A. (Split-Bottom Chairs).

## Make It of Celluloid? Dip Finishing

Relative to the slender sheet-metal cone illustrated here, I am wondering wether this gadget can be fashioned of celluloid or an imitation of that article? I am reminded of celluloid since reading the inquiry about "White Celluloid" on page 8 of the August edition.

I have noticed many forms of small toys that are fabricated from such material, and have seen many items such as tooth-brush holders

**Sheet metal cone, open at large end; closed at small end.**

and ornaments made from the same material. Possibly such a setup, that could be colored, might produce a more attractive cost price than my present method, wherein I use sheet metal.

Leaving out celluloid for a moment, I am interested in the most economical finish to use on this cone. At present the finish is sprayed on, but the subject of dipping the cones has its appeal, therefore, we shall be pleased to have the

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address of three or four concerns that manufacture dipping apparatus.

Perhaps this item may be considered too small for the dipping process, but with a conveyor system fitted with clasps to catch the small ends of the cones, those companies may see that their process will be much lower cost and save paint, plus the small oven drying process. I shall furnish them with samples for consideration.—S. S. Co.

## Food Can Lacquer

We are interested in procuring samples of lacquer as used in food cans. Our problem is to protect aluminum from corrosion by acetic acid, using a lacquer which will withstand forming lock seams and which will not be affected by carbonic acid or high humidity.—V. T. Q. Co.

## Lacquered Aluminum Sheets

Can you send us the names of concerns who supply lacquer-coated or enamel-coated sheets of aluminum for forming screw-caps for containers?—M. D. Co. (Cameras).

## Repair Chipped Enamel

We have several chipped lavatories and I am trying to find an enamel to cover these places, that will stand up under hot and cold water. I understand there is a formula that works very satisfactory and am trying to find out what it is. If you can help me out, I will appreciate it very much.—G. J. O. (Engineer at Hotel).

## Silk Screen Graining

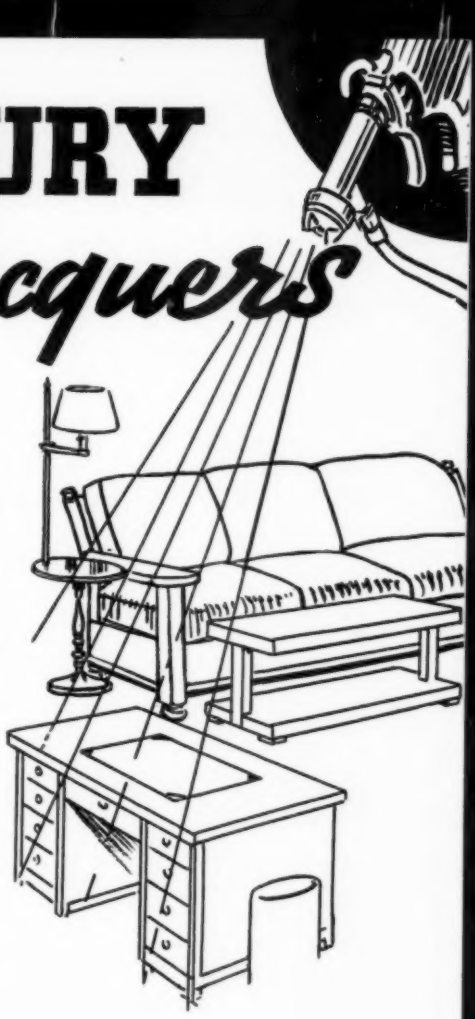
We have read with great interest Mr. H. L. Hiett's article on the photo-stencil process of reproducing wood grain (July issue pages 23-27) and are pleased to note he mentions that there are specializing firms offering ready made photo-stencils.

We would like to contact one of these firms, as it is quite possible that we could interest local industrialists in using this uptodate process in the Argentine. We handle duPont finishes in this market and are, of course, in contact with all possible prospects for finishing materials and equipment.

To save time, we request that you forward our name and address to

*(Continued on page 50)*

# LUXURY *in Lacquers*



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**Editor's Note—The author of this article has been calling on western transportation industries —railway, automotive, aircraft—for many years, selling finishing materials, and is familiar with the latest methods used, as well as certain problems in cleaning metal surfaces and then painting them to withstand swiftly moving air and all kinds of weather.**

# Painting Railway Cars

## FINISHING ALUMINUM AND ITS ALLOYS

BY W. R. ALLEN

LIGHT sturdy metals have proved their value in providing strength without excess weight, and long life without excessive cost. They have been accepted by railway car builders, the engineering departments of railroads, and the Association of American Railroads, as having qualities suitable for construction of passenger cars.

Manufacturers of finishing systems have spent years of chemical research to develop and prove specific systems of finishes especially adaptable to aluminum and its alloys.

Synthetic enamels are probably the best type of protective coatings for finishing railroad equipment constructed from these metals—and, let me add, they are equally efficient on steel, although the problem of finishing steel is much easier.

After panel-testing synthetic materials for five years, one leading manufacturer of finishes found that while panels showed slight signs of chalking, the film was in excellent general condition, providing an efficient protective coating for the metal underneath.

It is always desirable to select a finishing system that has been proved. Among the many qualities that recommend aluminum and aluminum alloys to the transportation industry generally, one is their exceptionally high resistance to corrosion. However, practically all metals oxidize to some extent and eventually this causes deterioration of the paint film, with a following destructive corrosive action.

In the case of aluminum, a white deposit (aluminum oxide) forms on the surface of the metal. Like all corrosive action, if this is allowed to gain a foothold, it will cause disintegration of the paint film and thus allow further corrosion to take place. Ordinary

primers, while appearing to cover the aluminum surface, do not actually protect it.

**Zinc Chromate Primer Recommended for Aluminum**

To prevent the formation of aluminum oxide it has been found that a zinc chromate primer not only covers the surface but, with its tough film and positive inhibitive action, shuts out oxidizing agents and is superior to the earlier types of primers used, because they did not prevent the corrosion referred to.

A number of zinc chromate primers are manufactured, including Army & Navy specification zinc chromate primers P27A and P27B.

An aluminum railroad car body is an expensive structure, therefore the careful application of all finishing materials should be rigidly followed. All aluminum surfaces to be painted may be treated or prepared for painting in one of two ways.

(Note: All parts not specifically covered in this article should be finished carefully . . . . consistent in every way with the general finish of the car.)

**Cleaning Metal and Priming; Method No. 1**

All surfaces are sanded with emery cloth and turpentine to a smooth bright finish, after which they are thoroughly washed with a suitable wash-up cleaner. Parts must not be handled after washing, before coating them with zinc chromate primer. This primer should be applied immediately—before any traces of moisture appears on the surface of the parts. Then the coated parts are assembled for riveting, and all fittings, inaccessible items, lap joints, and areas where metal is placed against metal are assured proper protection.

When the riveting has been completed, clean off all grease and oil that may have accumulated from workmen's hands or tools. If any parts or rivets must be replaced after this operation, the replacements are to receive the same treatment as the original piece. This same procedure must be followed if it is necessary to do any welding or dressing of the surface. All such places must be retouched with primer and thoroughly dried before going ahead with succeeding coats.

**Method No. 2 of Cleaning and Priming Metal**

All aluminum or aluminum alloy parts are treated with an acid-etching process. Following this operation the acid is washed off in one of two ways. If the acid has been applied by dipping the sheets and parts in a tank, they should next be put through a process of washing with warm water, followed by a second hot water wash containing about ½% acetic acid. This treatment counteracts the effect of any injurious substances that may have been deposited while parts were going through the acid bath.

If the acid treatment has been applied by hand to assembled parts, the work must be thoroughly washed with alcohol or a suitable wash-up cleaner, taking great care to remove all acid deposits from around rivet heads, moldings or crevices. It is a good idea to blow out all such places with compressed air, after which the zinc chromate primer should be put on the metal immediately.

(Note: Two approved methods of acid etching are offered by companies that advertise in this magazine.)

**Two Coats of Surfacer, Followed by Sanding**

After completing the initial treatment, as suggested in Method No. 1 or Method No. 2, and applying the zinc chromate primer, we are ready for the next or surfacer coats. I would like to call attention to the fact, at this point, that all materials should be applied to the metal in question, including the zinc chromate primer, in a dust-free room, maintaining a temperature of 70° F., with relative humidity not to exceed 60%.

Two coats of surfacer are applied over the zinc chromate primer (usually the synthetic surfacer recommended by the manufacturer of the cars or the one that is specified by the railroad to the car builder). A light coat is applied first; then this is followed immediately by a full wet coat, starting the second coat from the point where the spraying of the first coat began.

The sanding of this surfacer, when thoroughly dry, may be either wet or dry, using No. 320 wet-or-dry paper. This will remove all nibs, spray dust, etc., that may have accumulated on the surface. After sanding, blow out all traces of dust or water that may have accumulated around rivet heads, beads, moldings or crevices. Then all spots that have been cut through to the primer during the sanding operation must be touched up with primer or surfacer, or both as the case may require for best results.

**Two Coats of Synthetic Enamel Sprayed Vertically**

When this work has been completed, spray on two coats of synthetic enamel reduced with synthetic reducer according to the manufacturer's directions. The first coat should be applied light. Then follow with a full wet coat, starting the second coat at the point from which the application of the first coat was begun, and allow the finish or enamel coat to dry overnight.

It might be well to point out that when spraying railroad cars, all material should be applied with vertical strokes of the air-brush—never horizontally.

Various systems are recommended by manufacturers of synthetic enamels, but for all general purposes the information and methods described here are usually followed by all of them. Of course, there are systems that require an overnight dry, or 18 hours drying time, etc., but it will be found that the conditions under which the equipment is to operate, production schedules, and other local factors, determine which system to use—and for best results the past experience of the car builders and manufacturers of synthetic enamels should be considered.

**Stenciling Letters and Designs**

The stenciled letters and ornaments are put on according to the railroad company's standard as to type or style of lettering. As a rule synthetic striping and lettering colors are especially formulated (paste colors) for lettering and striping over synthetic enameled surfaces. One leading manufacturer produces a paste color which, when mixed in the ratio of

two parts paste color to one part synthetic decalcomania clear, makes a striping and lettering enamel that covers in one pass of the striping brush, and dries out of dust in 30 minutes, with a good luster.

A coat of decalcomania clear is applied over decals to protect the color. For spray application this material is generally reduced at the ratio of ten parts clear to one part synthetic reducer. For penciling over letters with a striping brush, the clear material is generally used as it comes from the container — and it dries out of dust in 30 minutes.

## Recent Changes in Furniture Finishing

THE EDITOR has asked me to write about what changes I have noticed in furniture finishing during the past five or six years. Well, the material changes have been along the lines of diffent grades of lacquers used. Many buyers of these materials have been guided by the different price ranges. For instance, a high grade lacquer has been replaced with a cheaper lacquer, but when it comes to coverage, body and durability, the cheaper material does not compare favorably with the higher grade product, therefore the buyer has not saved as much as he had been lead to believe he could.

Many other coating materials are on the market today, some of them making some headway in replacing lacquer materials. Synthetic varnishes are, to my knowledge, among the best to show fine results so far. In using a high grade synthetic varnish, it has been shown that surface equally as good as lacquer can be produced. This material, sprayed on lightly, one coat over a sealer undercoat, will dry overnight hard enough to be handled. Then, the following day, you can rub and wax to produce the desired effects. If more "body" is desired, spray another coat over this one and let it dry overnight—just as the first coat did. The 2-coat work shows an excellent body and will rub or polish to a splendid finish.

Although the cost of this synthetic material is equal to the cost of lacquer, it will cover much more surface than the same quantity of lacquer—thus the cost per square foot of coating is really lower. As to its durability in comparison, lacquer might have a slight edge by being tougher. Of course, there are cheaper synthetic finishes on the market, but do not get the idea that I am making any comparison with these cheap grades of material. — F. W. WORTH.

## Metal Finishing Equipment Co. Announces Calif. Distributor

The oldest and largest organization in the metal-finishing equipment and supply industry—Hanson-VanWinkle-Munning Co., Matawan, N. J., and Anderson, Ind.—announces the appointment of The Chamberlain Co., Inc., 2550 E. Olympic Blvd., Los Angeles, Calif., as distributor for its products in southern California. The Chamberlain Co. is carrying a complete stock of supplies for the plating industry.

## J. F. Nonamaker Dies

Mr. John F. Nonamaker, sales representative for the Zapon Division of Atlas Powder Co. since 1922, died at his home in Woodhaven, Long Island, August 19, at the age of 54. Mr. Nonamaker was attached to the Metropolitan New York office. A veteran in the lacquer Industry, he leaves a wide circle of friends and associates to mourn his passing.

# THE PREPARATION FOR AND APPLICATION OF DURABLE AND DECORATIVE COATINGS ON

# *Masonite Presdwood*

**An experienced and practical man gives detailed instructions about how to finish Masonite Presdwood panels as used in the construction of cabinets, fixtures, automobile trailers and dance floors. This will be followed by valuable comments and further suggestions from the Chief Engineer of Masonite Corp.**

**BY G. L. HARDY**

THE FIRST essential in preparing to finish Masonite Preswood panels successfully is to clear your mind of thoughts that either the standard or tempered Presdwood is a difficult surface on which to apply an enduring paint or finish coating that will be economical and practical. In reality these wood fiber compositions, marketed under the aforementioned names, are two of the cleanest and simplest kinds of surfaces that I have ever had the pleasure of working on—and I believe you will agree to this, once you become acquainted with a few of their trivial eccentricities.

The vital base of these compositions is a fibrous wood pulp that has been chemically compounded and pressed into a semiplastic mass or sheet . . . . and then dried thoroughly.

In treating this porous structure for paint, the first step is to carefully seal it. However, this does not mean an expensive operation. On the contrary, careful sealing is an economical step to prevent further paint applications from being wasted. Like wood, metal or any composition material, all edges and surfaces of Presdwood should be protected 100%.

Masonite Presdwood, being of fibrous porous nature, will absorb a certain amount of liquid—just as the wick of a lamp draws kerosene from the bowl and feeds it to the flame. The capillary action or tremendous absorption of this material is a point in its favor—and therein lies a little protection and durability secret. A good type of heat-bodied oil, or a synthetic rezyl clear primer, is the logical material to use as a first protective coating. Seal all edges and front and back as your first step, and you have conquered your Masonite finishing problem in its entirety.

Weaken or expose any bare portion or bare edge of a composition type of panel and, if it is not immediately patched or repaired and recoated properly, it will eventually absorb water, grease, gas, oil or whatever de-

stroying elements the scar is exposed to. Decomposition will gradually spread from that small weak spot to the entire panel. This is where your oil or rezyl sealer proves its armor-coat qualities. The right type of sealer will penetrate the wood-pulp composition so deeply that no destructive action can take place until the sealer has run its period of protective usefulness.

Considerable thought has been given to baking the primer-surfacer, as the best possible means of insuring perfect adhesion to either compositions of Masonite. A large trailer manufacturer and some of the other local (Los Angeles, Calif.) users of Masonite go so far as to coat all of their sheet stock on one side with a short-oil, low-heat, primer-surfacer; and then bake it. The sheet stock is cut to pattern or template size and slapped onto unprimed plywood — without the backs or edges being sealed. If the trailer is exposed to foggy or rainy weather, or if any other products made of this "half-finished" Masonite are housed in a humid room, moisture will eventually seep in between the bare backs of the Masonite and the unprimed plywood. As a result, the film of protection will pull loose from the Masonite base, and the Masonite panels may warp. Had the edges and back of the Masonite panels and the plywood been properly sealed, this trouble would never have occurred.

**A Masterbilt trailer with exterior made entirely of tempered Masonite Presdwood. The finish on it is in excellent condition after 2½ years of exposure and service.**

### Avoid Unsealed Backing

With unsealed wood backing— where the surface is exposed at times to excessive moisture or moist air — dry rot or fungus growth will eventually set in. Fungus growth will attack a wood or wood composition in short order. Seal it properly, and fungus growth will be unknown. It is no trick at all to stop these bad features entirely. As usual, you can nearly always trace this situation back to the paint shop or main office. Either the paint foreman is incompetent, or "the powers that be" have limited the cost of material and production to such an extent that the paint crew and their chief are at their wits ends to find a cheaper way to success. There is no "cheaper way to success" at the "sacrifice of quality" and sensible shop application routine.

Tracing the difficulties found in finishing this material, the fault every time has been just as described — whether said paint materials were used either for interior or exterior purposes.

Manufacturers and paint foremen have repeatedly told me that my methods and ideas were entirely out of the question. They declared that the finishing costs would be too high to be practical. Then they went on fighting comebacks from the paint line and from the final retail purchasers, and it has been my pleasure to go back to those same places later

and find them using a system along the lines of my original recommendation — and the fair ones readily admitted that it takes a little inexpensive horse sense to travel the road of successful painting in an economical manner.

Here is my great secret in finishing Masonite:

**Sand Off the Glaze;**
**Apply Thin Synthetic Primer**

1) Sand the entire face of the Masonite Presdwood panel lightly with No. 220 (or equal grit) dry sandpaper. Heavy sanding is not necessary. The application of a coating over tempered Masonite-Presdwood might be likened to finishing over baked enamel. Apply and finish direct to baked enamel, and naturally it will not adhere satisfactorily for a durable finish. Sand off the glassy-smooth baked glaze and your primer will anchor itself properly. After sanding off this thin glaze, apply a good grade of heat-bodied oil or clear rezyl type sealer; then, when dry, follow with a short-oil surfacer. There is the secret of half your battle.

One local paint concern makes a special rezyl clear primer that they advise spraying heavily, and while this coating is still in a tacky stage, they recommend spraying two cross coats of synthetic surfacer. This works 100% for a perfect bond.

2) The second half of the secret is to use a good heat-bodied oil or clear rezyl sealer on the back and all edges of the panel. Do not thin either of these sealers more than is necessary to make them spray satisfactorily. Of course, the sealer must be thin enough to penetrate the Presdwood surface. This will prevent moisture or any other attacking element from creeping under the edges of the paint coatings. Also, it will prevent any trouble from water-sanding operations. When the edges and back are left bare, that allows any attacking element to creep under the sealer and surfacer, thus causing the protective coatings on the face of the panel to pull loose from the Masonite Presdwood.

**Dance Floor Finish at**
**Movie Studio**

A local concern that makes most of the high-gloss dance floors you see in so many movie scenes, uses a short-oil-base primer which is applied directly to tempered Masonite Presdwood panels—without using an oil sealer underneath. In fact, they do not necessarily recommend an oil sealer underneath, even for exterior purposes. This concern also manufactures paints and I have used their product on trailers with remarkably good results.

When you have that Masonite Presdwood panel protected with a good heat-bodied oil or clear rezyl solution, you are sure that if the surfacer is scored through to the composition, you still have protection left that will combat any element destructive to the life of composition panel. Should the finish coatings peel from the surfacer, moisture would be retained and would penetrate through to the Presdwood. Surfacers that are 100% moisture-repellent will usually peel or pop loose from this wood composition, if applied direct. They need clear primer for proper anchorage.

These Masonite Presdwood movie floors receive a thorough

light sanding, followed by two to four cross spray coats of this surfacer. When dry they are sanded wet or dry to a glassy-smooth surface. Next, two or three wet cross spray coats of high-deposit lacquer are sprayed on, followed, when dry, with two coats of best grade high-gloss varnish. The edges are carefully sprayed. Visualize what a beating these floors of Masonite Presdwood take during heavy rehearsals up to the final scenes, and then you can realize that it is not easy to find a finish that will stick readily to this composition board. Never once has the paint peeled from the surface of these movie floor panels. Straight lacquer surfacers fail rapidly on Masonite Presdwood, although they work fine over a lacquer-resisting oil-base surfacer.

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*The second and final installment of this informative article will include valuable comments and suggestions from Mr. R. T. Miller, Chief Engineer of the Masonite Corp., prepared after a careful examination of Mr. Hardy's manuscript previous to its publication.*

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## Comments on Bake Finish Article

I HAVE read with interest Mr. Ray C. Martin's article about "How to Use Bake Finishes," beginning on page 14 of August issue, and am prompted to offer the following comments along this same line:

Baking enamels are formulated to bake at various temperatures —the higher the baking temperature the more durable the finish —and all modern baking vehicles are formulated with synthetic resins. Traces of drier are added to increase humidity resistance; usually .002% of cobalt and lead drier each are added — a little more if the baking temperature is low.

Gas checking and wrinkling are sometimes troublesome defects. Gas checking can be eliminated by the addition of 10% or 15% of phenolic resin. Too much drier will cause the wood oil to wrinkle during the baking process. Cobalt is a good oxidation drier, but a poor polymerization accelerator, while lead is just the reverse. Speeding up polymerization helps to form smooth coats and leads to the formation of smooth and even films; therefor it is useful to combine these qualities in baking enamels—and is necessary in some enamels.

Two-coat work generally means one coat of enamel over a primer-surfacer baked on, and defects can be remedied before the finish coat is applied. The use of a good undercoat will eliminate any lifting.

The use of thinners will affect the setting time of the enamel after it is sprayed. A quick set can be obtained by the use of coal-tar solvents. Time and expense may be saved if the ovens are filled and then adjusted to the right temperature. — F. R. BOYNTON.

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### Oven Expert Joins Sales Staff

Mr. H. G. Danielson, who has had 20 years' experience in oven and heating equipment, has joined the sales staff of the Industrial Oven Division of the American Machine & Foundry Co., at New Haven, Conn.

# Control . . . .

## THE BASIS OF UNIFORMITY

**Which specifications and tests mean something to the smart user of finishing materials today—when he decides to exercise practical control over the uniformity of finish on his products.**

**BY M. H. CORBIN**
Technical Sales Development, Standard Varnish Works

UNIFORMITY of product is an essential factor in successful operations. Regardless of the nature of the product, careful control of the uniformity of the component parts or operations is necessary to establish repeat business, which is the primary goal of industry. *It is cheaper to hold a customer than to get new ones.*

Although the above statements apply to industry in general, let us confine our discussion to protective coatings and their application. It has long been an unwritten law that paint companies will not guarantee their product other than assuring the consumer that it will be uniform.

Numerous factors, far beyond the paint manufacturer's control, affect the application, durability and workability of the product after it leaves his factory. Some of these factors are:

1) Uniformity of the base to which paint is to be applied.

2) Cleanliness of surface in case of metal, and moisture content in case of wood.

3) Temperature and humidity conditions.

4) Application, reduction, air pressure, gun adjustment, spraying, etc.

5) Drying or baking. In case of air drying, temperature and humidity of the atmosphere. In case of baking, the uniformity of oven conditions.

6) Conditions to which the finished product is subjected after it is fabricated.

Let us take, for example, a metal parts manufacturer who is interested in the maintenance of uniformity of the finish. Naturally, the first consideration is to obtain a finishing material that produces the desired finish, both from an appearance standpoint as well as its protective value, based upon the use to which the product is to be subjected. Naturally the quality of the finish

must be determined. For instance, it is totally unnecessary to put a refrigerator finish on toys or road implements, and vice-versa. The selling price of the article is also a factor . . . . an expensive finish is impractical to be applied on an article to retail for 50 cents.

A number of reputable paint manufacturers maintain elaborate laboratory facilities and are capable of furnishing suitable products for varying needs.

**What Specifications and Tests Are Really Important**

After the product is established, specifications should be set up as to percentage of solids, viscosity, gravity, opacity, and the chemical and physical tests that the material is to withstand, such as the resistance to perspiration, alkali, acids, washing powders, humidity and salt spray, and the general characteristics of flexibility, adhesion, abrasion, etc.

However, from a consumer's control standpoint, every shipment of material should be tested for solids, viscosity and gravity while only occasional tests should be made of the other properties just mentioned. Hence, for the control of uniformity of paint and varnish one can learn in a few hours the technique required to run solids, viscosity and gravity of the material, and the apparatus required is not elaborate. After the material is established the previously mentioned constants are sufficient to insure uniformity.

To run solids, a weighed sample is put in an oven at 212°F. (a 1 to 5 gram sample is sufficient) and kept at this temperature until a constant weight is reached. The residue is weighed. The percent solids then would be *weight of residue* divided by *weight of sample*, multiplied by 100. Of course, in each case, the weight of the container must be subtracted from the weights taken to serve as figures in this percentage calculation.

There are several variations of the method just described, some of which require more elaborate apparatus and more careful operation. However, this method, if used for all incoming samples, will give sufficiently accurate results as simply as possible.

**Viscosity; Specific Gravity**

For viscosity determinations, any of the usual viscosity cups will be satisfactory. A set of A. S. T. M. cups, however, are recommended. Make sure that the viscosity is always taken at a definite temperature, as variation in temperature will result in different readings. The viscosity cup is based on the time required for a definite amount of material to run through a definite size orifice at a given temperature.

The specific gravity is obtained by a suitable hydrometer. However, a weight per gallon cup is considered by some to be more convenient. This cup is constructed so that a definite amount of material is weighed and the weight obtained in grams is equal to a number of pounds of the material in a gallon. The same figure can be obtained by multiplying the gravity by 8.33.

Tests for these additional properties require more elaborate apparatus and greater skill in operation. Unless the product warrants such expenditure and the

manufacturer finds that it is feasible to employ a paint chemist for control work, these tests should be done by the paint company that furnishes the material.

**Thinning; Cleanliness; Check-ups; Surface Conditions**

In applying the material, reduction should be measured, not guessed. Different operators, naturally, spray differently. Intermittent checks on film thickness should be made.

Cleanliness cannot be stressed too rigidly. As in everything else, in the finishing industries it is of vital importance.

Checks should be made intermittently on the finished product to see that it meets the physical and chemical conditions set forth in the specifications.

The establishment of proper surface preparation c a n n o t be stressed too strongly. Many paint failures and product rejections can be traced to improper surface conditions. Traces of oil, rust, etc., are directly responsible for many failures. Particles of dust that are imbedded in the film might be removed, leaving a hole in the finish. This allows rust or corrosion to set up which grows and undermines the finish.

Checks should be made daily on the cleanliness and metal preparation to see that it is carried out uniformly and effectively. The base metal should be bought on specification, and s h i p m e n t s should be tested.

In most cases all manufacturers check their product before shipment is made, but the old story is still true—"Check and double check."

Inasmuch as there are innumerable types of raw materials from which to formulate finishing materials, many different compositions can be formulated that will meet definite specifications. Hence, *as long as the material meets certain specifications, the actual composition is of no particular value to the consumer.* Where heretofore Federal specifications called for definite ingredients, today they only specify the physical and chemical conditions which the paint has to withstand.

Like everything else, "Control" can become too elaborate and reach a point of diminishing returns. However, control set-up has in many cases paid for its upkeep many times over by reducing rejections and keeping the customer satisfied.

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## Changes in McAleer Mfg. Co.

Mr. C. H. McAleer, president, announces several changes in the Officers and Directors of the McAleer Mfg. Co.

Mr. Louis F. Davis, formerly of Philco Radio and Television Corp., and Kroger Grocery & Baking Co., who was elected vice-president and treasurer, will act as general manager.

Mr. A. H. Regener continues as secretary of the company as well as credit manager. Mr. A. G. Neubauer is in charge of sales to the distributors; Mr. C. J. Kennedy is in charge of sales to manufacturers. Mr. F. A. Weihe, Jr., is factory manager and Mr. Ernest Hummitch, purchasing agent and advertising manager.

The New Board of Directors is composed of the officers of the company and Mr. E. S. Finch of New York City and Mr. R. William Rogers of the firm Bulkley, Ledyard, Dickinson and Wright, attorneys for the company.

Coincident with these changes, Mr. C. H. McAleer is able to report a very satisfactory profit for the second quarter compared to a first quarter loss of $30,726.27. Prospects for the third and last quarter are especially encouraging as the company derives considerable volume from the automotive industry.

# BETTER STAINS for *Every* Surface

For every surface there is one best stain. When you find the one that best suits your requirements, a large part of your finishing problem is solved.

The Day Line of Stains includes a wide variety of types of stain. Each has superiorities in its field. Your requirements may be suited perfectly, no matter what the surface, or how you must apply the stain.

This wide assortment of stains enables you to choose the type which gives you the color effect you require, and the most economical method of application. Day's Stains are a little ahead of the field, giving you the most modern, salable colors.

**Our organization can be of considerable help to you in choosing the right stain for your purpose. Give us information about your requirements and we will sumbit recommendations.**

## JAMES B. DAY & CO.

• CHICAGO •

# HOW TO FINISH FURNITURE MADE OF *Pecan Wood*

BY F. R. BOYNTON

PECAN WOOD*—a comparative newcomer in cabinet woods—is a species of hickory. Insofar as I can see, this wood is excellent for use in the furniture industries and I believe it will serve equally well in the manufacture of fixtures for banks, stores and offices. I have had very good luck in finishing this wood and will explain some of my finishing methods for the benefit of those who are not acquainted with pecan wood and its peculiarities.

*The hardwood pecan is a member of the hickory family, its botanical name being Hicoria. Of the several species, the one of commercial importance as a cabinet wood is sweet pecan—not the cultivated pecan nut tree.

The timber grows chiefly in the southern states where it is found with red gum, oaks and other southern hardwoods. Trees in the best stands are of suitable size and character for sawing into commercial lumber, and some of the logs are cut into veneers. The lumber can be kiln dried on about the same schedule as walnut.

Pecan wood has an attractive grain quite similar to walnut and can be finished to match and closely resemble both walnut and mahogany, or it can be bleached and used as a blond wood. The heart wood is pale to deep reddish brown, occasionally characterized by reddish streaks. Sap wood is light brown to nearly white. It is utilized in the manufacture of furniture, fixtures, hardwood trim and hardwood floors. Its hardness and strength make it especially useful for the slender members of chairs, and it is well adapted for making bent wood parts when the bends are not too abrupt. It costs considerably less than walnut and is available in large quantities.

### Staining and Filling

Being a hardwood, it takes stain and filler very well. The first step in the finishing process is to apply the stain—preferably with a spray, as then the stained wood can be uniformed more satisfactorily. The non-grain-raising variety of stain is most popular among experienced finishers. After the wood surface has been shaded, the stain is allowed to dry from three to four hours.

Next comes the filling operation—a most important one. I mix the regular paste filler in the proportion of 12-lbs. of filler to one gallon of gasoline or naphtha, as I have found this to be the right consistency. Be sure that the filler has flatted down before you begin to "tow" it off; otherwise improper filling will result. The filler is then allowed to dry for 12 hours—more if drying conditions are not so good.

The stained and filled surfaces are inspected and any pieces showing sap streaks or unevenness in color are taken back to the shading spray and toned up. The sealer or shellac is then applied, after which lacquer or varnish is used as a finishing coat.

# STRAIGHT
## FROM THE SHOULDER

WE'VE got a *porcelain - like* short-bake finish that's making history in the industrial finishing field. Known as Vitra Carlite, it has met with all around approval wherever tested.

Vitra Carlite is specially suitable for use where a short baking enamel of *porcelain-like*, glossy smoothness is desirable. New beauty, new service, new eye-catching qualities can be added to your products with this NEW RICH FINISH.

Vitra Carlite finish is a synthetic resin product which, when baked at 300° F. for 20 minutes, or at a higher temperature in a shorter bake, gives in one full coat a tough, hard, elastic, marproof film. Also has good adhesion to almost all types of metal. Colors retain their shade with age to a good degree. May be applied by spraying, dipping, or brushing.

Write us for a working sample. After testing, we feel confident that you will share our enthusiasm for Vitra Carlite.

## HILO VARNISH CORP.

42-60 STEWART AVE., BROOKLYN, N. Y.

Boston Chicago

HILO

HILO VARNISH CORPORATION
42-60 Stewart Ave., Brooklyn, N. Y.

Gentlemen: We'd appreciate receiving a FREE working sample of Hilo Vitra Carlite.

Company.....

By.....

Address.....

City and State.....

IF—SEPT.

SAMPLE COLORS AVAILABLE

Ivory
Green
Yellow
Red
Blue
Black
White

# *They said:*

# "It can't

With his thumbs in the armholes of his vest, someone in every business says, "It can't be done!" to every new and different way of doing things. He is blood brother of the fellow who told Orville Wright it could not be done. An ancestor of his snickered at Robert Fulton, and a distant relative declared that rayon was a transient fad.

Frankly, it would not have surprised us if we had met many people like this when Polymerin was announced. Because Polymerin really is an amazing product—unlike anything else.

Polymerin brings new standards to industrial finishing. It lengthens the life of products finished with its tough, adhesive surface protection. It permits production schedules heretofore considered impossible. It lowers finishing costs through more efficient procedure and a saving of time.

To compare Polymerin with other industrial finishes is a tough job. And "tough" is the right word to use for Polymerin. To demonstrate how tough it is we ask two men to grasp washing machine legs in the manner of baseball bats, and slam them together as hard as they dare. Result? No effect on Polymerin! No scratches, dents (except in the metal underneath), mars, chips—the same hard, flexible, porcelain-like finish as before.

How was such a startlingly different finish developed? Just tinkering with existing materials could not have produced it. Polymerin is a product of Interrelated Research.

We asked this question, "If the industrial finishers of the country could write their own ticket, what kind of an industrial finish would they consider ideal?"

The answer was something like this: "Give us an industrial finish that can be processed with all the speed of lacquers but which still has those desirable qualities of synthetic resin finishes."

We put this up to The Research Laboratories of Interchemical Corporation, whose interrelated businesses bring them in close touch with all kinds of chemical coating problems. The answer was Polymerin.

Up to that moment the industry had said, "It can't be done!" When we announced the answer, Polymerin, there were still some skeptics who said, "It can't be done!"

Here are the facts about what has happened since then.

Polymerin was introduced over a year ago. Since that time it has replaced old-type finishes entirely in scores of large production plants. One

# *The answer is*

# be done!"

of the best known washing machine manufacturers has used Polymerin for more than a year and has gone over completely to Polymerin for its washing machines and other appliances. A manufacturer of electrical appliances whose brand name is a household word, has completed weeks of exhaustive tests and is about to equip its large plant for the maximum speed of production Polymerin affords.

In the cosmetic field, producers of fine toiletry containers (such as compacts and lipsticks) have adopted Polymerin for their beautiful merchandise.

In stove building plants, Polymerin, with its unusual heat resistance, its resistance to chipping, and its ease of application, has reduced finishing costs as much as $100.00 a day.

New names are being added rapidly to the list of manufacturers who have gone over completely to Polymerin for their industrial finishing—manufacturers of lamps, hardware, home laundry equipment, metal furniture, service station standards, office equipment, undersink cabinets, shower stalls, coated wire, vending machines, electrical appliances, toys, coolers, bicycles, scales, boiler jackets and other products.

Remember, Polymerin employs a unique chemical principle which accounts for its tough, unusually flexible film, and yet it permits amazing production schedules. Polymerin's beautiful finish has been compared to porcelain itself.

If the industrial finish you are now using does not measure up to Polymerin's remarkable characteristics, write, phone or wire immediately for a representative of Ault & Wiborg Corporation to survey your finishing problems.

## *Write for This Brochure*

To manufacturers using industrial finishes, we shall be glad to send a copy of the brochure, "The Answer Is POLYMERIN." It describes in detail the advantages of POLYMERIN and the interrelated research through which it was developed. A note on your company letterhead will bring you this booklet at once, without obligation. Why not send for it today? Address Dept. I. F. S.

AULT & WIBORG CORPORATION
SUBSIDIARY OF INTERCHEMICAL CORPORATION
Dept. I. F. S. — 77 Varick Street, New York City

# POLYMERIN

REG. U.S. PAT. OFF.

*The Original High-heat, Short-bake Finish*

Patents Pending

# M & W CAN HELP YOU SPEED UP PRODUCTION

Maas & Waldstein have helped many manufacturers to speed up production and reduce finishing costs per unit by suggesting improvements in finishes and finishing processes. Here, for example, are some of the changes that have been recommended to increase manufacturing profits:

Substitute air-drying for baking schedules.

Use enamels baking in less than 30 minutes in place of those requiring several hours.

Replace primers that must dry over night with those that dry in a few hours.

Use multi-coat systems that can be baked in one operation instead of systems requiring two or more bakes.

M&W has been serving manufacturers of products of every description for over 60 years. Its experience in the industrial finishing field is unsurpassed, and it is a leader in developing finishes that are fitted to special production requirements. An M & W engineer will call on request.

**Maas and Waldstein Co. · Newark · N. J.**

Branch Offices and Warehouses . . . 1336 Washington Blvd., Chicago . . . 1220 W. Pico Blvd., Los Angeles

VARCOTEX PIONEERS IN PROTECTION ENAMELS

**Walnut; Mahogany; Blond Wood**

This wood takes a beautiful finish either in walnut or mahogany and if properly toned up, only an expert can distinguish it from the real "McCoy." It doesn't have much life in the natural color, therefore stain is necessary to give it the desirable depth of color. If the shading is not correct, the job will present a washed-out appearance—like a modern lady without any "make-up."

Pecan wood takes the maple colors equally well, but in the darker shades of stain. It is a very good wood to bleach, and if the wood is carefully selected it can be converted into a beautiful blond or platinum finish.

Pecan wood, being hard and flexible to some extent, is ideal for the manufacture of chairs and other articles or parts that have to be bent or otherwise pressed into shape. Another thing to be said in favor of pecan wood is that it machines very easily; turnings and routings are made without chipping or fuzzing—and the wood can be sanded smoothly without difficulty.

**Nut Brown Finish**

Some of the pecan wood furniture made for churches and Sunday schools is finished in a "nut brown" which gives quite an attractive and durable finish. The color is easy to produce and for those who are interested, here is the procedure:

The pecan wood is first filled with a natural or light-oak filler and then allowed to dry in the usual way. It is then taken to the shading spray and toned up with walnut shading stain, the sap wood receiving more stain in order to make the surface uniform in color. Then the sealer coat is applied, followed by suitable periods of time for thorough drying and fine sanding. Next, one or two coats of flat lacquer are applied, the last coat being rubbed or steelwooled and waxed. The waxed job has a better appearance and is more popular.

I have never seen any burl or crotch veneers cut from this wood, but they ought to work equally as well as those made from other cabinet woods. I believe this wood has interesting possibilities and it should be taken seriously by northern furniture manufacturers, as the supply of our favorite walnut is not going to last forever.

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## Lando Finishes, Inc., Successor to Thos. E. O'Connor Co.

Lando Finishes, Inc., 410 Hart St., Chicago, Ill., has succeeded Thos. E. O'Connor Co. of Chicago, and is now manufacturing a complete line of lacquers, stains, fillers, etc., for the wood, metal, paper and affiliated trades.

Officers of the new organization are as follows: H. C. Ludwig, president and director of sales; Paul J. Murdoch, vice president, in charge of production; and Thos. E. O'Connor, treasurer and technical director. Both Mr. Ludwig and Mr. O'Connor have had many years experience in the capacity of director of sales and technical director, respectively, with national organizations.

The company is in position to furnish railway finishes, through the Williams-Hayward Varnish Co. of Chicago, of which Mr. Ludwig is a stockholder and director.

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## Spray Operation Instructions

Bulletin No. 338, prepared and distributed by Binks Mfg. Co., 3114 Carroll Ave., Chicago, Ill., contains six 8½x11-in. pages of line drawings and clearly designed instructions about the preparation of material for painting; the adjustment and use of spray guns, pressure containers and portable units.

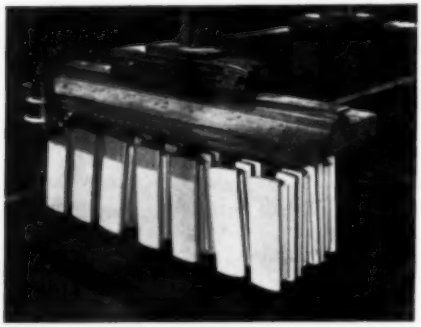


Fig. 1—Close-up of polisher blocks (42 of them) pinned to a hanger which, in turn, is attached to a holder of the automatic dipping machine. Ten of these holders dip and withdraw the work.

# Lacquer Dipping Small W

BY W. H. ROHR

THE BRIGHTLY COLORED wood handles of shoe daubers (for brushing liquid shoe polish on shoes) and shoe polishers are dip-finished in colored lacquer. Some are finished in red; others in green. In one establishment that has been manufacturing these products for several years, the handles are all dip-finished in an automatic multiple dipping machine. Several interesting methods and practices have been developed in connection with this work.

An idea of what the polisher blocks look like in the white can be gained by closely inspecting the close-up view of a rack full (42) ready to be dipped, as shown in Fig. 1.

To furnish a satisfactory base for the smooth lustrous colored finish on the flat backs of these polishers, the backs are prime coated before dipping. A grey prime coat is sprayed on while the blocks lie flat and close together in a shallow tray. When this preliminary coating is dry, the primed backs are lightly hand sanded; then they are aligned on end in racks, placed in a hand press, and the sharp metal points of a block hanger are pressed into their ends so they will hang in vertical position, as in Fig. 1.

When hangers of newly dipped blocks are removed from the dipping machine they are immediately pushed into the compartments of the draining rack pictured in Fig. 2. Each compartment of this rack will accommodate two hangers placed end to end. A shallow drip pan rests on the bottom of each compartment to catch the drippings—and later about 80% of these drippings are salvaged for use again. After the loaded

Fig. 2—Hangers of freshly dipped blocks from the dipping machine are hung to drain in this unit of multiple ventilating compartments, open at both ends. One side (the left side here) faces the front of the dipping machine. It is conveniently positioned for the dipping machine operator.

## all Wood Parts

hangers of dipped blocks hang for a few minutes in the draining rack they are transferred to a portable rack like that in Fig. 3.

### Final Dipping Coat Is Tinted Clear Lacquer

Following this dip coat of colored lacquer, the blocks are again passed through the dipping machine—after their first coat is dry to touch, which is usually within one to two hours. But on this second and final passage through the dipping machine, the coating material used is clear lacquer to give the surfaces added luster. Something has been learned here that may surprise you. The clear coat isn't actually clear; it's about 95% clear. Experience here has demonstrated that better results are obtained by tinting the clear coat; in other words mixing into it a small amount of the mixed colored lacquer. This tinting is done here at the finishing shop.

Again the hangers of blocks are pushed into the draining rack but they are left hanging for only a few minutes. At short intervals the dipping machine operator or his helper steps around to the other side of the draining rack,

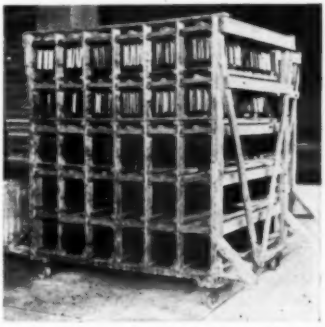


Fig. 3—A portable drying rack into which hangers of dipped blocks and handles are placed after removal from the draining rack illustrated in Fig. 2.

withdraws several loaded hangers and transfers them to a portable rack like that illustrated in Fig. 3. However, at the time of this handling, he pauses a moment to pounce the bottom ends of the blocks (which are all evenly aligned) against absorbent paper (paper towel stock) laid out flat on a level table. This quick "pouncing" operation is called "blotting." It is done before the material is completely dry, to blot or absorb the excess material that hangs to the lowest edge in the form of drips or fatty edges.

Before we get away from the automatic multiple dipping machine, it is worthwhile to notice that the part of the machine wherein open tanks of material are located, and in which the holders move up and down to dip and withdraw loaded hangers of blocks—this part of the machine is entirely enclosed in a specially built sheet-metal cabinet. The front of the cabinet can be opened for operations, of course. A large sheet-metal door is mounted in almost vertical slides and is counter-weighted so that it can be moved up and down easily. Its cables have fusible links so that in case of fire it will shut automatically—when the heat gets hot enough to soften the links.

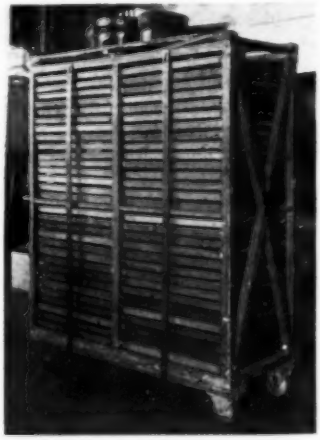
When the dipping machine is going to be idle for a few hours or overnight, a large flat plywood cover is placed over the entire row of open dip tanks, and the cabinet door is closed. These precautions help to minimize the fire hazard.

### Suction-Ventilated Draining Rack

Referring again to Fig. 2, we notice that this draining rack is piped to the ventilating system which removes lacquer vapor and fumes from the room. Screened holes (about 6-in. in diameter) are aligned vertically along the middle of the closed sides of the rack to admit lacquer vapor into the exhaust ducts.

This pulling out of lacquer vapor and fumes can be overdone if the exhaust suction is too strong, and it will produce a harmful effect on the lacquer film, as has been proved here. To avoid danger of this occurring there is a damper or valve in the branch line to this unit, and by careful regulation of this valve a suitably balanced suction can be maintained when it is really needed.

**Fig. 4—Here is a portable rack or special factory truck loaded with trays of finished blocks ready for delivery to another building. The trays are supported by small angle-iron slides. This is the open side of the truck, but the two vertical rows of trays are locked in place with two long steel bars positioned vertically as shown in the picture.**



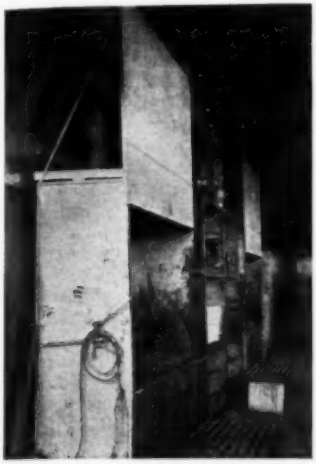


**Fig. 5—Here in the foreground is a sheet-metal cabinet containing two stripping tanks wherein rejects are washed in lacquer thinner to strip off the coating of colored lacquer. Another cabinet of the same size and design appears in the background.**

When the dip-finished blocks have become thoroughly dry they are removed from the hangers, carefully inspected, touched up where necessary, and placed in shallow trays. These trays, in turn, are loaded onto portable factory trucks, locked in place as shown in Fig. 4, and transferred to motor trucks by which they are hauled to another building where the polishing felt and wool are applied, and where they receive the gold insignia or whatever other lettering the manufacturer elects to put on for identification or advertising.

Dauber handles, which resemble small paint brush handles, are assembled on metal hangers and dipped, first in colored lacquer and finally in tinted clear lacquer, as just described for the polisher blocks. They are also "blotted," racked, inspected, placed in trays and hauled away.

### Stripping Paint from Rejects

In work of this kind, where the volume is large and a high quality finish is demanded, there is bound to be rejects. The percentage is comparatively low in this finishing shop, but facilities are provided for quickly and effectively stripping all colored lacquer from any handles that are rejected, so they can be salvaged and refinished. Part of the equipment for stripping off paint is illustrated in Figs. 5 and 6. Here is a large sheet-metal cabinet with a counter-weighted front sliding door suspended in vertical position by cables that have fusible links. Within the cabinet are two rectangular tanks each fitted with a metal cover. These tanks contain lacquer thinner which is agitated by compressed air escaping from small holes (1/16-in.) in piping laid on the floor of the tank. Three lengths of ½-in. pipe lie on the floor of each tank—one length in the middle and one at each end.

Painted polisher blocks to be stripped are laid out flat on wire mesh trays and these trays will slide into a metal rack as shown in Fig. 6. To make it possible to lower and raise this heavy rack full of loaded trays, a small block and tackle is suspended by trolley from a steel I-beam above. The same block and tackle serves both tanks in this one cabinet.

Dauber handles to be stripped of paint are dumped into a wire mesh basket of rectangular shape which will fit into this same rack.

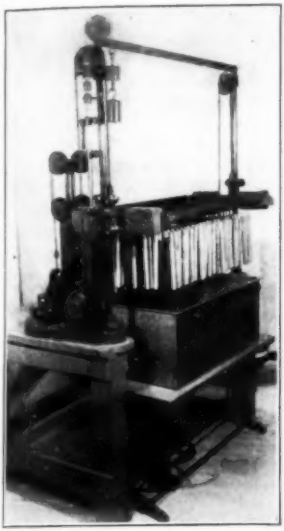
When a rack full of rejects is lowered into the tank of thinner and the compressed air is released to produce a violent agitation of this thinner, the rejects are soon washed clean of their coatings, although they will still retain the stain of colored lacquer. When this stripping thinner becomes heavily loaded with pigment, it is removed from the tanks and carefully strained so it can be salvaged for use in thinning new batches of colored lacquer. However, even before this condition becomes apparent, the blocks begin to come out of the stripping tank with excessive pigment clinging to them. For a short time they can be wiped clean. Then it is customary to give these imperfectly stripped blocks or handles a rinsing in clean lacquer thinner—doing this work by hand in a galvanized wash tub.

### Storage, Mixing and Testing of Materials

The lacquers and thinners used here are received in steel shipping drums which are hoisted onto a low bench where they stand on end in a row. The bung of each drum is fitted with a spigot suitable for drawing off the contents. When new batches of colored lacquer are prepared, the proper quantities of colored lacquer and lacquer thinner are drawn from the spigots of the storage drums and measured into 5-gallon containers. These measured quantities of material are thoroughly stirred with a mixing paddle, tested for viscosity and then dumped into one of the several open-head upright steel drums each of which contains a hand mixer. Material for the dipping tanks is drawn from the spigots of these drums of ready-mixed material.

The viscosity tests are made with a Ford cup. The viscosity of the materials used is held to within very close limits, which are the points at which these materials have been found to work most satisfactorily and economically. It has been learned that some variation in viscosity is desirable according to the prevailing temperature and humidity. (This shop is not air-conditioned). In other words, in hot weather, the lacquer can be allowed to test thinner according to measured viscosity, and still carry the same percentage of pigment solids, therefore it will give the same performance — because the same

**Fig. 6—Front view of cabinet shown in Fig. 5. Notice the rack partly filled with wire-mesh trays into which rejected blocks are placed. With this outfit the "throw-outs" can be submerged in agitated lacquer thinner and washed clean in the tanks. Later they are refinished.**



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**DIPPING MACHINE**

INCREASE PRODUCTION

No more long drops, or fatty edges.

Machines for assembling most any wood and metal parts ready for dipping.

Paint Tanks, Tank Trucks, Assembling Racks and Other Equipment

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*Cotton Wool Rayon* **FLOCKS**

*of superior quality recognized by leading users*

MODERNIZE YOUR PRODUCTS

Give them a finish coat of Cotton, Wool or Rayon Flocks. They will attract attention and sell faster.

Let the country's leading makers of Flocks supply your needs. Just let us know what type of products you wish to improve. We'll help you.

**CLAREMONT WASTE MFG. CO.**
CLAREMONT, N. H.

*The Country's Leading Makers*

proportion of colored lacquer to thinner has been maintained in the mix. Also, when the humidity is excessive, some lacquer retarder is added to the material being used.

The arrangement of supplies, equipment, work stations and trucking lines in this finishing shop is such that the work progresses naturally in a continuous economical circuit. In the one partition wall the two openings are fitted with fire doors. All electric lights and electric switches are of the vapor-proof type. Through ventilating ducts from an exhaust fan, all vapors and fumes are promptly pulled away from every point where lacquers or thinners are exposed; one duct extends down to within 6-in. of the floor. The one spray booth has the usual type of individual exhaust fan. For heating the shop in cold weather, two overhead unit heaters are provided.

## Torture Test for Finishes

A "TRIPLE torture test" in which the enamel used in finishing refrigerator cabinets is submitted to the sun's rays, along with the heat and moisture from a volume of steam at a high temperature all at the same time, is reported by the chief engineer in charge of testing operations for a large manufacturer of refrigerators.

In describing this unique and unusually severe test intended to constantly improve the lasting durability of the finish used for the surfacing of the refrigerators manufactured by his company, the chief engineer stated:

"We take panels painted with enamel and place them in a cabinet covered with glass. This cabinet, situated on the roof of the laboratory, is so adjusted that it exposes the painted panels to the sun-shine for considerably long periods of time. At the same time we introduce steam into the cabinet in order that the enamel will be subjected to the multiple tortures of sunshine, heat and moisture. This test gives us valuable information relative to the so-called 'chalking' of finishes, which is the development of a chalky surface appearance after prolonged service."—*From Servel.*

## Wrinkle Finish Patents

Organized to control the patents on so-called "wrinkle finishes" used on automobile radios, cash registers, typewriters, calculating machines and a line of similar products, New Wrinkle, Inc., of Dayton, Ohio, has acquired the 17 American and two Canadian "Wrinkle" patents of The Chadeloid Chemical Co., The Kay and Ess Chemical Corp., and The Kay and Ess Co.

These patents cover all of the irregular surface finishes generally described as Wrinkle, Crinkle, Shrivel, Sag, Morocco, etc., produced with China Wood Oil or its equivalents, and apply to both oxidized and non-oxidized finishes.

Manufacturers of such special finishes are operating at present under a revised form of license developed by New Wrinkle, Inc., which has been received favorably throughout the industry.

The primary objective of New Wrinkle, Inc., is to create an acceptance for "wrinkle finishes" as standard rather than special by developing new and wider uses for these finishes and by solving the specific problems brought up by customers of the organization's licensees.

To attain their objective, New Wrinkle, Inc., will rely on a house magazine and trade paper advertising and is also contemplating publication in book form of a comprehensive collection of technical data including formulas, methods of manufacture and similar information for the exclusive use of its licensees.

STANLEY

# 1617

Reg. U. S. Pat. Off.

## Truth Will Out!

**A few months ago we received a request from a large eastern manufacturer for a sample of Non-Spotting Lacquer. For years he had told us his present material was good enough. Today he is a steady user of 1617 Clear Metal Lacquer.**

**Again the claims made for this Quality Lacquer and its Non-Spotting characteristics have been proven.**

**The spotting out of finishes on cast metals and the crystal spotting of oxidized finishes will be reduced and possibly eliminated by the use of 1617 — the Original Non-Spotting Lacquer.**

### TRY 1617 THIS SUMMER

**when due to heat and humidity spotting out is most prevalent.**

**THE STANLEY CHEMICAL CO.**

**EAST BERLIN, CONN.**

**LACQUERS - SYNTHETICS - ENAMELS - JAPANS**

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# Questions Answers

## To Speed Up Slow Drying Lacquer

We have a lot of colored lacquer that was used for printing on silk cloth. We now wish to use it for dip-finishing wood ornaments. We find that in using this on a wood ornament, in the dipping process, the lacquer does not dry quickly. The finish requires about 24 to 36 hours to dry.

Could you advise us what we can do to make this lacquer dry faster, so that it will dry in about one hour? — W. B. Co. (Novelties).

---

In reference to the conversion of silk-screen paints or lacquers to dipping wood lacquers, first it will be necessary to review the nature of the constituents of the two types of materials. Silk-screen lacquers consist of a relatively high-solid content, with high pigment concentration in combination with very high-boiling solvents. The particular silk-screen lacquer referred to in your inquiry is applied on silk cloth. This, naturally, would have a high content of plasticizer to render the film flexible and plastic.

Dipping lacquers for finishing wood products, on the other hand, also have a relatively high pigment to binder ratio, but have a considerably lower viscosity and solids than silk-screen lacquers. Also, the solvent balance is of a faster nature than that contained in a silk-screen lacquer. Therefore, to adopt a silk-screen lacquer for service as a dipping wood lacquer, it would be necessary to reduce the former with a high resin lacquer that does not contain plasticizer, together with some medium-boiling solvents to a consistency suitable for dipping. In this way the speed of drying will be greatly accelerated, first, by reducing the plasticizer content of the material, as well as the high-boiling solvent present in the silk-screen lacquer. Of course, a certain amount of the very high-boiling solvent will be retained, but since the amount is reduced considerably, the relative drying time would be increased quite noticeably.—M. H. CORBIN, Chemist.

---

## Why Does Lacquered Brass Tarnish?

We have been experiencing trouble with our solid brass goods tarnishing and spotting, as per samples of small cup hooks being sent you under separate cover. We would appreciate your advice in regard to correcting this trouble we are having.

Our present process is as follows:

1) Bright dip (mixture consists of one part nitric acid and two parts sulphuric acid—cold solution).

2) Rinse in cold running water.

3) Sodium cyanide dip (Solution consists of 3 to 4-oz. of cyanide per gallon of water).

4) Rinse in cold running water.

# MACHINE TOOL FINISHES

Primers . . . Fillers . . . Glazes . . . Top Coats in machine tool colors. These are the standard materials in the Egyptian Line of Machine Tool Finishes. There are also special materials to meet individual requirements. Ease of application, quick drying, and durability are but a few of the advantages of Egyptian Machine Tool Finishes. Easy working qualities of Egyptian Undercoats, responsible for a smoother and more attractive finish on rough castings and resistance to alkali and lubricating oils are additional advantages.

We welcome an opportunity of discussing Egyptian Machine Tool Finishes with manufacturers of this type of equipment.

**The Egyptian Lacquer Mfg. Co.**

**Rockefeller Center**

**New York, N. Y.**

EGYPTIAN FINISHES

5) Rinse in hot water.

6) Hot air drier.

We have lacquered our cup hooks, but have had many complaints. Most of our trouble is with shipments to the east coast, and during the summer season when the humidity is high.

We have had the impression that a special very light oil was used by some concerns, to correct this condition, but do not know who manufactures same. We will appreciate any suggestions you may have to offer in regard to the solution of this problem.—N. H. Co.

---

The appearance of your samples would lead one to believe that those small brass cup hooks had not been thoroughly cleaned of the dip solution—or the lacquer coating did not completely cover all surfaces. There is evidently a weakness somewhere. Your process checks with what is typical of modern practice. Are you sure that your lacquer is of good quality, and that it is covering the surfaces of the hooks thoroughly and completely? Readers of Industrial Finishing, have you any suggestions?—Editor.

---

## Clear Waterproof Finish for Station Wagons

We manufacture station wagon bodies which carry a natural wood finish. The framework is made of northern white ash and the panels are 5-ply, faced with white birch. We have had some difficulty of properly sealing these panels to make them waterproof, without staining the light clear finish.

Our process of finishing these plywood panels is as follows:

Before they are assembled we apply one coat of sealer and two coats of varnish on the edges. We mix into the varnish a clear waterproofing compound; this is done to prevent moisture seeping into the edges, but it has not proved successful.

After the panel work body sides are assembled, the entire job is given one coat of sealer, including the panels, which makes two coats on the panels. Then the body is given three coats of clear varnish.

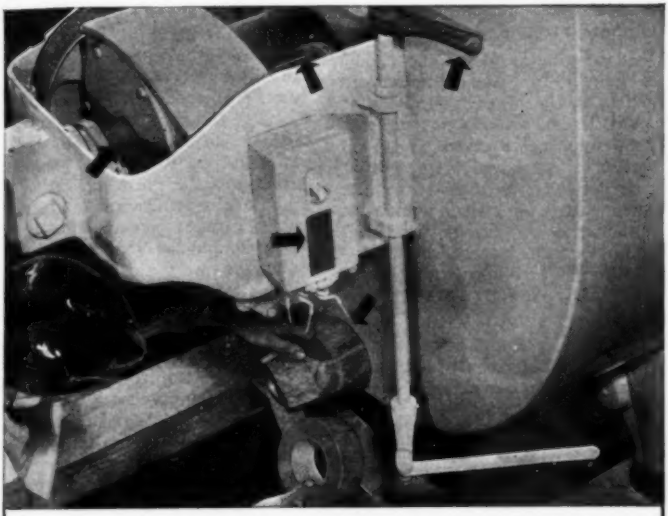
There is certain waterproofing that can be used but in each case we find that it stains or darkens the veneered panels. What we want is to obtain a waterproofing process that will not stain the panels.

It is our thought that there may be some solution you have found or can recommend, which could be used on these panels to eliminate their absorbing this moisture when in service. If you know of any material of this nature, will you please give us the name of the manufacturer or source where it can be obtained?

After the panels are in service the parts that seem to be mostly affected are those under the molding and in the grooves, as here the entrapped moisture seems to destroy the life of the wood and the glue.—R. H. Body Co.

---

The first thing to be considered in producing a waterproof body is to start with materials that are the most resistant to moisture. How about those plywood panels? What type of glue has been used between the veneers? Is it one of the latest approved waterproof glues, or is it

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Protect name plates, chrome parts, machined parts and valves —save cleanup time.

Scotch Masking Tapes are made specially to meet the needs of industrial finishers. They are flexible, strong, seal instantly without moistening and are easily removed, leaving no stain or residue.

There are other Scotch Tapes in widths from ¼ inch to 26 inches with varying degrees of adhesion and strength of backings to meet special industrial conditions.

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just a glue suitable for panels that are to be used inside?

Blood glue is one of those that is known for its resistance to moisture, therefore it is one that could be recommended for this particular type of work. Once you decide to use a really waterproof glue between the plies of veneer, even though the cost is somewhat higher, you can rest assured that you have made the correct start—and in the long run the added cost will be offset by fewer rejects.

Another factor to be considered is to have the grain of the outer layer running horizontally if possible. The reason for this is that the end grain of the wood is the hardest to waterproof, and by running the outer ply horizontally the end grain will be at the sides instead of at the tops and bottoms of the panels.

Even though the edges of plywood panels are sealed perfectly the finishing foreman must be alert to see that when the panels are fitted, their sealed edges are not planed off in spots by the body builders. Often the finishing department starts with the best of intentions insofar as water proofing is concerned, but then someone unwittingly undoes all of it by some thoughtless move.

When waterproofing the edges of plywood, there are two very important operations that are often overlooked. First, the edges should be sanded thoroughly; otherwise, moisture will creep down the ragged edge and cause trouble. Second, the edges should be blown off clean to remove all sanding dust. Otherwise, this dust will become dislodged after your waterproofing treatment and will allow moisture to penetrate the glued-up veneers.

In the application of waterproofing, best results can be obtained by brushing the liquid into the edges rather than by spraying. If the body framework and paneling are to be put together with glue, it must be realized that ordinary cabinet makers' glue is quite insufficient. The joints should be cemented with a good marine-type of adhesive. A marine-type glue will resist moisture; in fact, it is sometimes relied upon as an edge waterproofer.

My suggestion for finishing the sides is to apply coat after coat of clear spar or marine varnish until the desired finish is reached. It will be necessary to apply as many coats to the edges and parts under the molding as are applied to the finished surface. In fact my experience with body building is that the surfaces that show the least must be waterproofed the most.

Here is a question I wish to ask: Is a waterproofer being added to a short varnish in order to produce an edge waterproofing varnish? If so the result may be a mixture that is not waterproof. —H. H. GLINKE.

## Bleached Walnut

Referring to Mr. H. H. Glinke's article about "Bleached Walnut" in August issue, page 17, I have this to add:

The use of bleaching lacquer is much superior to ordinary lacquer thinned down, as the gum content has a tendency to yellow with age. More can be said on this subject if required. — F. R. BOYNTON.

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*Color and design engineering of individual and distinctive finishes*

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## Trans-Lux Metallic Colored Lacquer

Trans-Lux metallic colored lacquer is a highly pigmented flexible lacquer offered by Hilo Varnish Corp., 44 Stewart Ave., Brooklyn, N. Y. It is durable and will stand normal outside exposure. It dries to a tough surface which has a pearly metallic sheen and a fair luster.

This attractive decorative and protective coating may be used on any non-porous surface to which ordinary lacquers or enamels could be applied. The smooth semi-lustrous finish need not be rubbed or polished, and no protective coating of clear lacquer is required.

On some metal surfaces — steel, brass, tin, copper, and polished aluminum—Trans-Lux metallic colored lacquer adheres firmly. On nickel and chromium, better adhesion is obtained by first applying a coat of clear synthetic baking primer.

---

## For Flock Spraying

Included in recently developed equipment for spraying flock, as described and illustrated in a new bulletin, Paasche Airbrush Co., 1917 Diversey Parkway, Chicago, Ill., offers Type FPRF flocking airbrush, Type FF613 pressure flock tank, and Type F873 combination flock-reclaiming and adhesive-coating booth.

The high-production flocking airbrush (Type FPRF) is light and easy to handle; the 2-finger trigger accurately controls the flow of flock; all parts are made of brass, heavily chromium plated, except the aluminum handle. This gun will operate continuously at high speed without any possibility of clogging. Flock enters the airbrush at the handle and passes directly to the multiple-head which is readily adjustable for either round or wide fan spray.

As the trigger is pulled air is admitted to the tank through the flock-circulating head and flock is automatically released from tank to airbrush. Eight cubic feet of air per minute and 25 to 40 lbs. airline pressure are recommended.

**New...**

**MATERIALS**
**SUPPLIES**
**EQUIPMENT**

The material pressure tank (Type FF613) is made of one-piece pressed steel, fuly galvanized. Its easy-opening easy-locking "clamptight cover" may be removed and replaced in 15 seconds. An even flow of flock from tank through hose to airbrush is assured by the special indexed control agitator and flock-circulating head which provides whirling and downward air currents to keep flock properly agitated, and directs flock into opening of hose so that flock is carried out with air to the airbrush; there is no possibility of any clogging.

Outfit for spraying flock.

Referring to the combination flock-reclaiming and adhesive-coating

# WOOD GRAINS

## *A Complete Wood Graining Process Designed Particularly for Your Plant*

**The Chambon Wood Graining Process is a complete intaglio-offset printing process designed for manufacturers of wallboard, steel furniture and partitions, radio cabinets, automobile parts and accessories, instrument boards, etc. Chambon offers not only wood graining cylinders and plates but also wood graining presses and roller cleaning machines plus an engineering and installation service which is available in every industrial finishing center in the country.**

### *Reproduce from Originals*

**In the Chambon process, engravings are etched from positives on copper so that each cylinder or flat plate is an original engraving. Reproduction from Chambon plates are authentic and accurate copies of the original woods.**

**We invite inquiries from manufacturers now using wood graining plates and from prospective users.**

**(Above) Showing a section of fabricated metal wallboard produced from a Chambon wood graining cylinder on the Chambon offset press illustrated at the left.**

*Graining Systems Division*

## CHAMBON CORPORATION

**GARFIELD, N. J.**

booth illustrated here, the binder is applied in the right-hand section and flock is applied and reclaimed in the left-hand section. The booth is made of 22-gauge steel panels electrically welded to a heavy angle-iron frame, and is easy to clean. The air-distributing plates are readily removable, and provide a uniform flow of air throughout both sections. To prevent any possibility of sprayed flock from scattering around the finishing room, there is a special removable curtain at the front of the flock section. The collector screen at back of flock-reclaiming section rests on expanded metal. Excess flock drops from the collector screen into flock collector where it is reclaimed for use again. Safe ventilation is assured by the fireproof ventilating unit.

## Gyro Electric Sander

The Gyro Electric Sander is a new type of portable rotary sanding machine announced by Sterling Products Co., 2457 Woodward Ave., Detroit, Mich. . . . added as a companion to the Speed-Bloc to complete their line of mechanical sanders.

The movement of the sanding pad on this machine closely simulates the hand sanding motion of cabinet and furniture craftsmen. Abrasive paper attached to the bottom of the pad has a movement whereby each particle of abrasive moves in a centroid of approximately 5/16-in. The outstanding features produced by this movement are: Extremely high cutting speed, uniform finish and the elimination of chasing and graining effects.

The machine is efficient for heavy production jobs, but flexible enough for the lightest work. It replaces expensive hand sanding on new or refinishing work, sands out undercoats, feathers "spot jobs," and removes paint from finished metal, wood or composition surfaces.

Perfect balance, light weight (3¼-lbs.) plus the compact dimensions and design of the sander head provide a comfortable "fit" to the hand, making the Gyro extremely responsive to the guidance of the operator. The machine is easy to operate and produces uniformly high quality work, 25% to 50% faster than is possible by hand.

**A new type of electric sander for convenience, safety, speed and economy.**

Power is transmitted to the sander head by a new type of extremely flexible shaft, from the heavy duty ¼-hp. 3450-r.p.m. electric motor.

Special abrasive paper is not required. Ordinary size sheets are cut in four pieces without waste. From one to five sheets of abrasive may

Neither STERILIZATION nor DEEP DRAWING can DULL or DAMAGE this BRILLIANT BLACK FINISH

Jet-cote

FOR SPRAY, DIP OR ROLLER APPLICATION TO METAL

Jet-Cote is a bright black metal coating that stays black and brilliant through all the abusive processes of fabrication . . . including deep drawing and sterilization. It can be used directly on metal without sizing. Ask for details.

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be attached to the sanding pad at one loading.

Three different types of motor mountings are provided: 1) the bench plate type for use on the work bench; 2) ceiling suspended type with the motor suspended from the ceiling or overhead trolley by means of a yoke; 3) adjustable height pedestal model with motor mounted on a 3-leg caster base.

## Frost-O-Lite Finish
### (Decorative Effect)

Frost-O-Lite is the name of a new decorative air-drying finish that produces a smooth crystallizing effect when it dries on a smooth surface. The name fittingly describes the appearance of the finish. It can be used with or without a primer coat on all kinds of metal surfaces, paper, wood, fiber, and composition materials.

This new finish obscures imperfections in the surfaces that are finished, but still the finish is practically smooth and very easy to keep clean. Frost-O-Lite is available in 15 colors. It covers approximately 400-sq.ft. per gallon on smooth steel sheets. This material is a product of Sanvin Chemical Products Co., 1617 21st Ave., Moline, Ill.

## Wet Spray-Booth Cleaner

A cleaner especially designed to keep the vital working parts of a wet spray booth from becoming fouled by paint pigments has been developed by the Detroit Rex Products Co., 13005 Hillview Ave., Detroit, Mich. The name of the material is Triad WS. It makes possible the complete control of paint pigments and other ingredients. Plugging of the lines, pumps, spray nozzles, and eliminators is prevented.

By varying the concentration of Triad WS in the system, to suit the particular paint used, paint materials are floated on the top of the supply tank. With this procedure the clean solution is drawn from the bottom of the tank, eliminating the possibility of fouling any working parts. The paint is removed at periodic intervals, and can be reclaimed for other use . . . .

Since effective coagulation is accomplished at low concentration, the difficulty of excessive foaming and the danger of caustic burns are eliminated.

## High Speed Spray Gun

A special model of the DeVilbiss Co's. high-speed, heavy duty Type MBC spray gun, designed and constructed to meet the urgent need for a spray gun with a high degree of resistance to the abrasive action of porcelain and ceramic materials, is announced by the DeVilbiss Co., Toledo, Ohio.

Embodying all quality features found in the standard MBC gun, this new model incorporates strengthened

**Strengthened wearing parts assure longer life.**

wearing parts and materials which increase the life of the gun, assure efficient performance at all times, eliminate production delays caused by gun failures, and reduce scrap defectively finished by spray guns with worn parts.

The gun body is finished in natural alumilite, giving a hard, wear-resistant, aluminum-colored surface. Gun hook is removable and may be replaced when worn or damaged. Trigger pivot screwhole bushings and reinforcements inserted in the trigger at the contact point of the needle are special hardened steel.

Inserts used in the orifice of the fluid tips, and points of the fluid needles are made of carboloy. This material is only slightly less hard than diamond, and gives extremely long wear.

## M. S. Stop-off Lacquers

Two new types of stop-off lacquers for insulating plating racks for decorative plating and for masking parts to be hard chromium plated have recently been developed and placed on the market by the Michigan Chrome Co., 6340 E. Jefferson Ave., Detroit, Mich. These lacquers are known as Miccro Supreme Stop-Off Lacquers. They are applied directly on the metal surface with no treatment necessary other than a thorough cleaning of the surface to be coated.

The lacquers used for insulating plating racks have proved to be practically unaffected through the regular cycle of decorative plating. Tests conducted over prolonged periods with alkaline cleaner at 212°F., showed the coating to be still effective after 500 hours of continuous immersion. These tests prove the value of the lacquers for work which may be run through a fully automatic cleaning system or carried on conveyors in cleaning operations.

Other processes in which these lacquers have proved exceptionally effective are concentrated or diluted hydrochloric acid or sulphuric acid dips, cyanide or acid copper baths, standard or bright nickel baths and chromic acid baths. They are equally impervious to nitric or hydro-

*try to scratch or mar it!*

Here is a lacquer finish that cannot be marred or scratched with the thumbnail, or other destructive agencies — a much tougher piece of goods than the ordinary lacquers. It produces a splendid transparent finish of full depth on maple, walnut, gum, mahogany and other cabinet woods.... It is made in either the Clear Gloss Rubbing or the Satin Finish. Mar Proof Lacquer Sealer is recommended for first coat.

THE SCHAEFER VARNISH COMPANY, INC.
Louisville, Kentucky

fluoric acids. They have proved satisfactory for use with degreasing units.

In use with hard chromium plating processes, the lacquers, while offering exceptional adhesion, can be removed easily after plating, permitting thorough cleaning of all parts that have been coated. They possess rapid air-drying qualities. Edges can be trimmed easily and excess lacquer can be quickly removed with a lacquer thinner. As the material is absolutely neutral, and not contaminated by acid or other destructive substances, there is no possibility of etching in machined parts that have been precision lapped. These lacquers are particularly recommended for coating permanent hard plating racks.

Among other applications for these lacquers are their use for tank coatings, insulating bus-bars to prevent corrosion, the protection of ventilating systems, and as a covering for water lines to prevent sweating or rusting.

## Clear 1-Coat Finish

A new line of clear finishes for industrial use is announced by the Finishes Division of E. I. du Pont de Nemours & Co., Wilmington, Del. The development represents another step in the expansion of the methacrylate resins into the finishes field.

Unlike the older type finishes, those of a methacrylate base afford unusual adhesion and flexibility over bare, non-ferrous metals such as aluminum, chromium and brass. They deposit a glossy, water-white film which dries rapidly by evaporation. The coating is hard and non-yellowing, resistant to acids, alkalies and alcohol. It has demonstrated satisfactory durability under outdoor exposure.

The new finish may be applied by any of the usual methods, such as brush, spray or dip. It has been designated as the RC-900 line.

## Air-Operated Agitator

An air-motor operated agitator known as the Pneumix Type B, to handle batches of material up to 100 gallons, has been developed by the Eclipse Air Brush Co., 390 Park Ave., Newark, N. J. The outstanding feature of this stirring device is its safety element! It is spark-proof and cannot heat. This feature is of particular interest to the handler of inflammable organic compounds and solvents.

Over-all size of the Pneumix Type B, is 40x6-in., and it weighs only 17-lbs.

Speed of the pneumix is variable —from 30 to 6000-r.p.m., requiring from 5 to 50-lbs. pressure. Speed is controlled by the air intake on the motor. This is an important item where there is a change of viscosity of material during the mixing operation. Quiet operation is assured by a muffler in the exhaust line.

Splash-proof performance has been provided by having the two propeller blades "throw" toward each other. The entire construction is so designed that all internal working parts are protected against any splashing or dripping. The upper propeller is removable, so that the unit can be used on smaller quantities of material.

The shaft is available in chromium-plated steel, stainless steel or bronze; the blades in chromium-plated brass or stainless steel. Parts made of other materials can be supplied on order. Shaft is removable so that it can be replaced with another of a different metal when a change in material requires it.

## Wire and Rod Booklet

The Alloy Metal Wire Co. of Prospect Park, Pa., has just published for all users of wire, rods and strips a helpful handbook of information and data on alloys. This booklet contains finger-tip facts on the wide variety of alloys used in wire, rod and strip form. In addition to listing the description, application, and price per pound of alloys, it contains wire data, the range of uses, current temperature characteristics of wire, resistance, and feet per pound.

## R. H. Clinton, President of The Clinton Co., Dies

Mr. R. H. Clinton, President of The Clinton Co. (Mfrs. of finishing materials) Chicago, Ill., died at Evanston, Ill., Aug. 8, 1938, following a stroke. Mr. Clinton was thoroughly familiar with the wood and metal industry, having been associated with M. L. Barrett & Co., later with the F. W. Thurston & Co., and the Chicago Glue Co. He was Secretary and Vice-President of the James B. Day & Co. for 16 years. He founded the Clinton Co. in 1928.

He is survived by his widow and two sons. The two sons have been associated with him in the business since its organization, and are thoroughly capable of carrying on.

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All Tapes in ½" to 36" wide in 60-yard rolls

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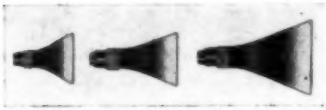
## Flat Spray Nozzles

For metal cleaning and industrial washing, Spraying Systems Co., 4922 W. Grand Ave., Chicago, Ill., an-



They range in size from ⅛ to ⅜-in.

nounce a line of "Flatjet" nozzles available in male pipe connections from ¼ to ¾-in. and in capacities ranging from one to 20 gallons per minute at 40-lbs. pressure. The "Flatjet" nozzle delivers a sharp flat hard-hitting spray with uniform distribution. Standard nozzles are made of brass, but can be furnished in any other metal required to meet chemical and corrosion conditions.

METALPREP
The Complete Metal Cleaner

- REMOVES Rust, Oil and Grease
- ETCHES the Metal
- MAKES Paint Adhere

Ideal for preparing Iron, Steel, Aluminum, Aluminum Alloys, Galvaneal, Galvanized Iron, etc., for paint finishes. Has been used on more than ten million units. *Used First —Makes Your Paint Finish Last.*

*Write for Literature*

**Neilson Chemical Co.**

6564 BENSON ST. DETROIT, MICH.

**Bull Dog Quality Lacquer Sticks**

(New and Entirely Different)

The perfect Lacquer Burning-in Cement. Will not raise or soften and is not affected by any type of lacquer.

LARGEST LINE OF COLORS

Write for Color Card, showing both Lacquer and Shellac Stick Colors and for the name of nearest distributor.

UNIVERSAL SHELLAC STICK CO., Inc.
28 Howard Street New York, N. Y.

## Sprays Heavy Materials

The Thor Model 7E-1, an improved model over the company's recent 7E spray gun for heavy materials, has just been announced by the Binks Mfg. Co., 3114 Carroll Ave., Chicago, Ill. It is so designed that heavy materials such as asphalt paints, sound deadener materials containing sand and other abrasives, will flow out easily through the rounded contours from the material inlet to the material nozzle.

The new gun is offered with a variety of nozzle set-ups, and has a

For spraying sound deadener, etc.

¾-in. material inlet opening. Like the former 7E, it is of the internal atomization type and nozzles can be furnished to deliver either round or flat spray.

### Lawrence-McFadden Moves

By October 1, the Lawrence-McFadden Co., will be located and in production in their new plant at State Rd. and Shelmire St., Holmesburg, Philadelphia, Pa. This location gives the company a siding on the main line of the Pennsylvania Railroad to New York, with ample room for future expansion on 2½ acres of ground. The new building is a 2-story concrete fireproof structure expressly designed to handle the production of the company's well-known line of wood-finishing materials. The equipment includes many interesting innovations and improvements to increase productive efficiency and control.

## Letters from I. F. Readers

*(Continued from page 8)*

the concerns referred to by Mr. Hiett, asking them to write us, giving full details of the screens they are able to offer, and if possible sending us a small sample with full instructions for the use of the screen. We are especially interested in regard to the materials with which it can be used, that is paints, enamels, synthetic enamels and pyroxylin lacquers or, alternatively, whether the screen can be used only with oil colors or colors ground in japan, suitable for finishing with clear synthetic or pyroxylin finishes. — N. U. A. Buenos Aires, Argentine, S. A.

## Finish Small Steel Parts in Color

We are interested in finding out where we may have some small tempered steel parts painted in colors to match other parts of our products; that is, this job would be either a baked enamel or some other durable finish in colors. We understand that this work can be done mechanically by tumbling. Some of our friends have suggested that we write you for this information as they thought some firms in the east could do this work.—I. E. Mfg. Co. (Mechanical Pencils).

## Polishes Sheet Aluminum

We noticed, in June issue, pages 6 & 8, an inquiry for information relative to the polishing of aluminum strip in continuous rolls. This inquiry, signed E. Mfg. Co., asks if you can give them any information on this subject, or if you could direct them to anyone acquainted with this type of polishing. We should like to inform you that for several years past, we have been specializing in this sort of work and have carried on a great many experiments, merely as a service to manufacturers of strip or sheet metal, in promoting the sale of our products. Only recently, we installed a new machine which was built especially for automatically grinding and polishing strip metal up to 30-in. wide by means of coated abrasive belts. In conjunction with this, buff drums may be used to bring up a high polish.

As we have a store of information which would probably be very helpful to this concern, we would appreciate it very much if you would put us in touch with them. We believe this contact would be to our mutual advantage.—Behr-Manning Corp.

## Maybe It's "Insulite"

In July issue, page 5, I notice an inquiry regarding "Insolite." I think probably the company wants information on "Insulite." I recently built a new home and used some Insul-

**TECH PRODUCTS**

Wood - Bleaches (The Original)

Our Specialty

Also, we make our own Solvents, Shellac, Lacquer, Filler, Stains, Sealers, Thinners and Coating.

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*for Industrial Use*

IMPERVIOUS INCO PRODUCTS — ENAMELS, LACQUERS, VARNISHES

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IMPERVIOUS VARNISH COMPANY, KOPPERS BUILDING, PITTSBURGH, PA.

tile board in the bathroom and kitchen, and I think this is the material this company is looking for.

It is made by The Insulite Co. of Minneapolis, Minn., with mills at International Falls, Minn. It is called "The board of a thousand uses." I hope this information will be of value in solving the A. R. Co.'s problem. I find much of interest in INDUSTRIAL FINISHING, and am glad of this opportunity to be of possible service. —Sep. Booth, F. F.

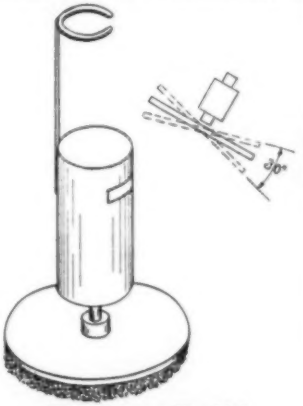
## Recover Solvents

Please refer to INDUSTRIAL FINISHING for August 1938, page 60, regarding the paragraph, "Recover and Re-use Solvents." Kindly advise who does this class of work.—A. Mfg. Co.

See advertisement on page 54 of that same issue.—ED.

## Rotary Polisher

One of our distributors wants to know the name and address of the manufacturer of a certain type of




**Who makes one like this?**

polisher. Their description of the polisher is as follows:

"The machine is a rotary electric polisher but while being rotary the pad has a kind of gyro motion or an up and down play [we would call it a wabble effect]. The machine has grips which clamp to the operator's arm. The sketch herewith covers the machine and the separate sketch covers the polishing discs motion."

We will appreciate your giving us any information available on this subject.—E. E. Co.

We have never hear of such a machine. Will some reader who recognizes it please tell us the name of the manufacturer?—ED.

A
NEW PEAK IN
*Blanchit*
(Reg. U. S. Pat. Off.)
DEMAND
Furniture and Fixtures.
New and Refinishing.
**L. R. Van Allen & Co.**
CHICAGO, ILL.

**No. 711 METAL PRIMER Air Drying**
—as an undercoat for either Lacquer or Synthetic Enamels.
Inquiries from interested manufacturers of metal products, invited.
H. V. WALKER CO., Elizabeth, N. J.
*"FINISHES TO FIT THE PRODUCT"*
New England Warehouse, Brown & Dean Co., Providence, R. I.

## Burning-in Knives

Kindly supply us with the names and addresses of any firms that manufacture electric burning-in knives.—U. A. Co. (Furniture).

## Toy Finishing; Tumbling

Have you any books on Toy Finishing and Tumbling, both as to methods and materials? Please send us a list of prices so we may order these books. If you are unable to furnish us with this information kindly let us know to whom we may write for this information.—T. Toy & Novelty Co.

We know of no book on either subject.—ED.

## Paint Like Chromium

We are in need of a metal finish such as you have mentioned in recent issues of the INDUSTRIAL FINISHING magazine, under the trade name of "Paint Like Chromium." We would like full particulars, including prices, methods of application, durability and any other descriptive literature pertaining to this product. We would appreciate your aid in obtaining this information.—S. Z. Corp. (Washing Machines).

## Japanning—Enameling Ovens

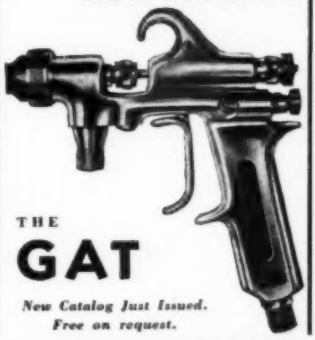
The Crawford Oven Division of the American Machine & Foundry Co., New Haven, Conn., announce the publication of a new 44-page catalogue of industrial ovens and dryers.

This catalgue is in numerous sections (each in two colors) and covers such processes as baking, drying, curing, japanning, enameling, polymerizing, low temperature annealing, expansion heating, wax, asphalt and compound melting, and other processes involving temperatures up to 1000°F. Sizes range from laboratory ovens to large conveyor types.

Accepted practices on certain processes are described but special or secret processes are not disclosed.

Standard size ovens and drying units of both the conventional type and "Convector" type, are illustrated, described and dimensioned. The "Convector" is especially stressed due to its elimination of all duct work, and its extreme flexibility with respect to air volumes and is adaptable to any source of heat.


High Speed at Low Pressure



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*bring out the* QUALITY *you have built in*

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# EDITORIAL

## Gets Last Drop from Drums

Have you ever felt guilty of wastefulness when you have left some thinner or finishing material in the drum or barrel because you didn't have a convenient way of getting all of it? There is a tool now available for pulling out of a drum that last quarter of a pint of material. It looks like a bicycle pump with a long slender removable extension tube. One type of extension is a straight stiff tube; the other is a flexible tube. You simply drop this tube into the hole of the drum or barrel, tilt the drum to drain the remaining contents into a low corner, direct the end of the extension into this low place and then pull on the suction handle. This draws the remaining liquid into the extension tube and into the cylinder of the pump from which it can be expelled after the pump is withdrawn from the barrel. The device is simple, inexpensive and easy to use.

## Custom Finishing

In every manufacturing city there are opportunities for one or more custom finishing shops—that is if someone in the organization is energetic in publicizing the shop sufficiently to let prospective customers know of its existance and its facilities for doing work.

The work to be handled in such shops will include both product finishing and product refinishing jobs—supplemented perhaps with metal cleaning and occasional sanding. Some jobs will call for substantial quantities of parts or assembled articles to be finished. While most of the jobs will call for air-dry finishes, some of them will specify bake finishes, hence the need of an oven.

Since some of the orders will probably specify the finishing or refinishing of small wood and metal parts or articles, it will be desirable for the custom shop to have an automatic dipping machine and probably a whirling machine (which supercedes tumbling) in addition to the usual spray equipment.

A well equipped custom finishing shop can obtain jobs from out of town as well as from its own immediate locality. One means of making contact with concerns who have work of this kind to do is

to keep in close touch with industrial salesmen and local distributors of finishing materials, supplies and equipment. These men are in position to learn of any custom work that may develop in their territory.

Direct solicitation of probable and possible prospects will also uncover some leads to business for the custom shop. Once the shop establishes a reputation for doing quality work and handling orders on a prompt business-like basis, a considerable volume of repeat business will come in at more or less regular intervals. In fact, some regular contract work may be developed that can be counted on regularly.

---

## The Man Behind the Gun

When spray work is satisfactory in every respect, do we realize how many things must be just right for attaining this perfection, including the man who handles the gun? The quality of the material, its viscosity, temperature and cleanliness; the compressed air, its pressure, temperature and cleanliness; the room air, ventilation and booth suction; the light on the work; the cleanliness and condition of the surface being sprayed; the spray gun, its adaptability for the work, its condition and adjustment—and last but all important, the man behind the gun.

While visiting the well equipped refinishing shop of a street railway company on a summer day, we were told by the foreman that he was having some trouble with wrinkling of the one-coat quick-drying synthetic enamel at some small areas along the sides of cars being painted. He wondered if the upward draft of the "side air curtains" of his canopy above cars being sprayed had something to do with it. He was quite puzzled.

Two weeks later when we called, he had found what was causing his trouble and had remedied it. "It was the man behind the gun," he declared. The spray operator's long sweeping horizontal strokes (he was not cutting off the spray at the end of each stroke) were overlapping too far on the adjoining freshly sprayed area and the excess pile-up of enamel at those places was producing the wrinkle effect. The remedy for this was obvious.

In another establishment having modern equipment, ideal working conditions and a standard line of work repeated day after day, some of the spray men insisted upon adjusting the air pressure to suit their own ideas. Standard work and uniformily mixed and tested materials were being sprayed with widely varying air pressures. The company put a stop to this practice by installing in the air lines heavy brass air-pressure regulators that have no dials or easy hand adjustments. They can only be adjusted with a wrench. Another case of considering the man behind the gun.

In a newly organized truck-body shop, where the company is deferring installation of any type of spray booth or canopy, it is now the custom to use a portable outfit and spray the bodies where they are completed. It's a type of local-area spraying such as you find in many of the automobile repair shops. In reply to our questions, the manager declared: "Oh, if we turned some spray men

loose in here, they would spray paint all over the shop. We have had that kind, but now we have a man who can spray paint so expertly that you can stand alongside him and not be touched by overspray." Again, it's the man behind the gun.

Wherever paints or finishing materials are applied by hand spraying, the man behind the gun is the important factor—important to everyone concerned with that finish. It is to the interest of executives in these industries to see that their spray gun operators are carefully selected, properly instructed, adequately safeguarded, and supplied with the best of what is needed to do fine work easily and economically.

## Fireproof Storehouse

A fireproof storehouse for paints, finishing materials and thinners, located a short distance away from the main factory building, is often advised but it is not so frequently found in connection with the average small and medium size plant where finishing materials are used. Recently we visited a plant where a well-equipped fireproof storehouse of ample size is in service. It has a concrete floor, cement building-block walls, and an all-metal roof. The doors are locked except when drums of material are being received, or when specified quantities of material are requisitioned for service in the finishing department, therefore this storehouse has the further advantage of preventing any unauthorized taking of materials, or any other kind of tampering with stored supplies.

A chain hoist, operating under an overhead I-beam, affords a convenient and safe means of lifting drums of material and placing them on strong racks where they are at a more comfortable height for the drawing off of materials into the smaller containers. The electric lights are protected with vaporproof globes. Two fire extinguishers, suitable for putting out liquid fires, are in conspicuous locations and in condition for immediate use.

This fireproof storehouse belongs to a very large plant that has a modern type of fireproof building—a company better able to afford a fire or to pay high insurance premiums than many of the smaller establishments that are getting along without this needed protection and economy.

**Radio manufacturers foresee a decided upturn in business this fall, particularly in the south and southwest. The representative of one nationally known company returned in August from a tour of the south ranging from Virginia through Texas, and he is highly optimistic about prospects. He declares that the southern farmer is leading the economic upswing now and announces that his company's fall advertising and merchandising calls for a concentration of activity in the south and middle west, with advertising to appear in 19 farm publications.**

## Measuring; Mixing; Straining; Testing

If the paint job on manufactured products is to be satisfactory in point of durability, appearance, uniformity and econo-

my, then the four factors mentioned above are highly essential. They should be routine operations in the preparation of materials immediately before application.

Most materials used in the finishing department or paint room require some thinning. Just how much thinning is best, under any particular set of conditions, will have to be determined by someone's past experience. Once this is determined, the information should be set down for future reference — and the management is entitled to know this as well as the foreman of the department. Then, if something goes wrong with the finish, the percentage of thinning is a known instead of an unknown factor, which will be great assistance in checking back to find what may be causing the trouble.

Mixing, of course, must be thorough to be effective. Hand stirring and pouring the material back and forth from one container into another will produce results, but if there is much of this to do, a power agitator will save considerable time and labor, and it really does a thorough job of mixing. When the mixing is thorough, you are assured that another element in the preparation of your materials for application to the product has been properly attended to.

Straining the material before it is used removes any lint or small particles that may be present. As a result you get a smooth surface finish and have no trouble with the spray gun from this source. Facilities for straining are available at such low cost that there is really no excuse for neglecting this important factor in the preparation of material for use.

**Today more than ever before, those who purchase and specify products for use in industry are insisting upon basic standards by which they may judge more accurately the value of the product from quality and performance standpoint.**

Finally, comes the testing of the material for viscosity — and perhaps for specific gravity. These tests are easily and quickly made and they reveal information that is important. Viscosity tests are usually made with a Ford cup and stop watch, while specific gravity tests are made with a hydrometer.

Where a considerable amount of product finishing is done, the element of cost is of vital importance to management. A uniformly high quality of finish must be maintained but the cost of material, labor and rejects must not be excessive. The proper measuring, mixing, straining and testing of materials before application makes it possible to maintain uniformity in the film of coating applied to products, and it permits the cost of finishing to be held to a minimum, in a practical and intelligent way.

## Industrial Safety Catalog

Willson Products, Inc., 312 Thorn St., Reading, Pa., has just issued a new catalog of industrial safety devices.

The illustrated catalog covers the complete Willson line of eye, nose, throat and lung protectors. Included are more than 50 types of goggles for every conceivable purpose, a dozen welding handshields and helmets, seven United States Bureau of Mines approved types of dust respirators, air line respirators, abrasive helmets, etc.

## Case History No. 7

Industry's newest structural metal is Magnesium Alloy. It is about two-thirds the weight of Aluminum Alloys. Because of extreme strength and weight saving, as compared with other metals, it is rapidly being adopted for engines, motor buses, aircraft parts, household accessories, trailers, light weight trains, etc.

The protection of Magnesium Alloy from exposure, however, presented a difficult problem which finally has been answered very satisfactorily in cooperation with other up-to-date research laboratories.

The best method of protecting this new Alloy depends entirely upon the conditions of service exposure — whether indoor, general outdoor, or marine atmosphere. Definite finishing schedules are recommended accordingly, and they usually consist of a primer surfacer and enamel or varnish finish coat.

Those interested in the painting of Magnesium Alloy or in the solution of a specific problem of their own, are invited to write, furnishing all details to — INDUSTRIAL RESEARCH, DIVISION OF WIPE-ON CORPORATION, 105 HUDSON ST., NEW YORK. A complimentary copy of "Case Histories" will be sent covering this problem and others, such as non-discoloring white metal finishes; burnproof enamels; two-tone finishes, eyelet coatings, 10 minute air dry metal finishes; airplane finishes and seam compound, and coatings to resist alkali, alcohol and acids, together with a solution of your individual problem.—Adv.

## Oven-Baked Finishes

JAPAN, ENAMEL or lacquer depend on oxidation for the completion of the bake, whereas polymerizing finishes are completed by a chemical reaction which occurs at a predetermined temperature of the coated surface. Any of these coatings, however, enter the oven in a liquid state and leave in a solid state, necessitating the safe removal of the combustible solvent. Of this solvent driven off during the baking process, the larger percentage is lost during the early stages of the bake.

From the above it becomes apparent that the longer the pre-dry period, the less the total ventilation required in the oven. Also in a conveyor oven, the first portion of the conveyor needs more ventilation than the last part of the travel.

The loss of solvent during a bake is easily computable, based on a known pre-dry period, the number of square feet of coated surface, and whether the material is dipped or sprayed.

Lacquer ovens and rooms are usually well ventilated because lack of ventilation causes irritation of the nose and throat of the operators. The solvents in japan and enamel do not cause this discomfort, but they must be removed to avoid fire and explosion hazards.

Fuels cannot be selected on a B. T. U. basis, yet a B. T. U. analysis cannot be disregarded. It is simply one of the many factors to consider. Some of these factors are:

A) Availability of a specific fuel—at the oven; B) reliability of its supply—at the oven; C)

cost per unit of production; D) total investment—based on comparable quality of baked finish.

Note: With gas or electric rates based on total plant consumption, the installation of an oven heated by one of these fuels may decrease the cost per fuel unit in the entire plant. This saving can all be credited to the oven fuel, for without it, the saving would not be effected.—*American Machine & Foundry Co. (Crawford Oven Division).*

## Chemical Research Booklet, Free

A new approach to the problems of industry is described in The Story of Interrelated Research, a 16-page booklet, bound in blue covers and published by Interchemical Corporation, 75 Varick St., New York, N. Y. The booklet tells of recent developments in printing, industrial finishing, textile coloring and other industries, and shows how advances in one type of business may often be applied profitably to related fields.

Since this "interrelation" of industry exists, a fundamental research program is designed to investigate basic problems which affect several industries. The problem of speeding up the drying time of chemical coating is cited as an example of this. Various fundamental Interchemical developments led to the introduction of a fast-drying process for printing on paper, a quick-setting industrial finish, and a process and a material which speeds up and simplifies the printing of textiles.

The booklet says that "where the products of a group of companies are related in character, there is an opportunity for coordinated research. This brings the experience and knowledge gained in one field to the solution of the problems of another. The organization of this interrelated approach and a basic method of establishing objectives are the distinguishing features of Interrelated Research."

Special laboratory divisions for the study of various projects are described. These activities are coordinated by a laboratory administration, and reports from individual sections are prepared so they will be clear and useful to other divisions. A final and essential division is the product development laboratory, where new products are adapted for commercial application.


## Classified Advertising

**Rate: 45 cents per line per insertion—minimum $1.35**

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Equally familiar in latest both wood and metal finishes, thoroughly acquainted with production costs. Would like connection anywhere on the Pacific coast. Address IF-708, care Industrial Finishing.

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As demonstrator, trouble-shooter or foreman. Skilled on pyroxylin machine filling, production and maintenance spray painting. World Fair and museum finishing. Now employed. H. H. GLINKE, 464 Rhodes ave., Akron, Ohio.

**SITUATION WANTED**

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**FINISHING FOREMAN WANTED**

By manufacturer of wooden housewares. Must be experienced in spraying and dipping of stains, oil and synthetic enamels. Give experience and salary expected, also references. Address IF-707, care Industrial Finishing.

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Evening classes in Philadelphia in Paints, Resins, Metals and Industrial Processes. Elementary and advanced courses by mail. DR. BROWN, Industrial Consultants, 3404-C Baring st., Philadelphia, Pa.

**FOR SALE**

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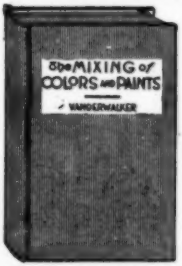


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## Index to Advertisers

Advance Paint Co. ..... Third Cover
American Electrotype Co. ..... 61
Atlas Powder Co. ..... 2
Ault & Wiborg Corp. ..... 28-29

Binks Mfg. Co. ..... 18-19

Chambon Corporation ..... 51
Claremont Waste Mfg. Co. ..... 41
Classified Advertising ..... 67
Crown Spray Gun Mfg. Co. ..... 8

Day & Co., James B. ..... 25
DeVilbiss Co., The ..... 4
Dolan & Company, V. J. ..... 6
du Pont deNemours & Co., E. I. ..... 36-37

Eclipse Air Brush Co. ..... 61
Egyptian Lacquer Mfg. Co. ..... 45

Hilo Varnish Corp. ..... 27

Impervious Varnish Corp. ..... 59
Industrial Tape Corp. ..... 57

Juergens Co., Wm. A. ..... 68

Lilly Varnish Co. ..... Front Cover

Mahon Co., The R. C. ..... 29
Maas and Waldstein Co. ..... 30
Minnesota Mining & Mfg. Co. ..... 47
Mitchell-Mayer Co. ..... 8

Neilson Chemical Co. ..... 58
Northern Mach. Mfg. Co. ..... 41

Oxford Varnish Corp. ..... 49

Paasche Airbrush Co. ..... 6

Reliance Varnish Co. ..... 17
Rockford Varnish Co. ..... 35
Ross Engineering Corp., J. O. ..... Back Cover
Roxalin Flexible Lacquer Co. ..... Second Cover
Rudd Lacquer & Sealer Corp. ..... 7

Schaefer Varnish Co. ..... 55
Smith, C. W. ..... 38
Stanley Chemical Co. ..... 43
Sterling Products Co. ..... 1
Stille-Young Corp. ..... 9
Sun Oil Co. ..... 6

Tech Mfg. Co. ..... 59

Universal Shellac Stick Co. ..... 58

Van Allen & Co., L. R. ..... 60
Varnish Products Co. ..... 6

Walker Co., H. V. ..... 60
Watson-Standard Co. ..... 53
Wipe-On Corp. ..... 66

Zapon Co., The ..... 2
Zapon-Brevolite Lacquer Co. ..... 2

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**Each Chambon wood graining cylinder or plate is an original etched engraving reproduced from a positive, so that reproductions are authentic copies of the original woods.**

**Only Chambon offers a *complete* intaglio - offset printing method for users of fine wood reproductions. Chambon makes not only wood graining cylinders and plates but also wood graining presses, roll cleaning machines and accessories to fit any production schedule.**

**Manufacturers who are using or planning to use wood grain reproductions are invited to submit their problems, to write for sample panels produced by the Chambon method.**

*(Above) Showing section of a panel produced from a Chambon wood graining cylinder and a Chambon intaglio-offset press.*

*Graining Systems Division*

**CHAMBON CORPORATION**

**GARFIELD, N. J.**

*duranite Today's Finish For Today's Products

ZAPON clear Duranite is providing excellent finish results on scores of widely diversified metal products. Its unusually brilliant gloss, light color, and perfect adhesion are rapidly establishing new metal finish standards.

Due to exceptional flow and high solid content, clear Duranite gives excellent mileage.

Baking time may be as short as a minute or less, or as long as a half-hour, depending upon your conditions.

There are clear Duranites which resist perspiration, alcohol, acids and alkalis.

ZAPON will demonstrate in your own plant the remarkable properties of either clear or colored Duranite.

*Trade Mark

ZAPON REG. U.S. PAT. OFF.
EASTERN SALES: ZAPON DIVISION ATLAS POWDER COMPANY Stamford, Conn.
WESTERN SALES: ZAPON-BREVOLITE DIVISION ATLAS POWDER COMPANY North Chicago, Ill.
BREVOLITE REG. U. S. PAT. OFF.
LACQUERS ENAMELS VARNISHES
INDUSTRIAL FINISHES